EXCLUSIVE! VIDEO TOASTER—p. 20

AMIGA WORLD

October 1990
U.S.A. $3.95
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An IDG Communications Publication

VIDEO TOASTER

Special Effects Dynamo!

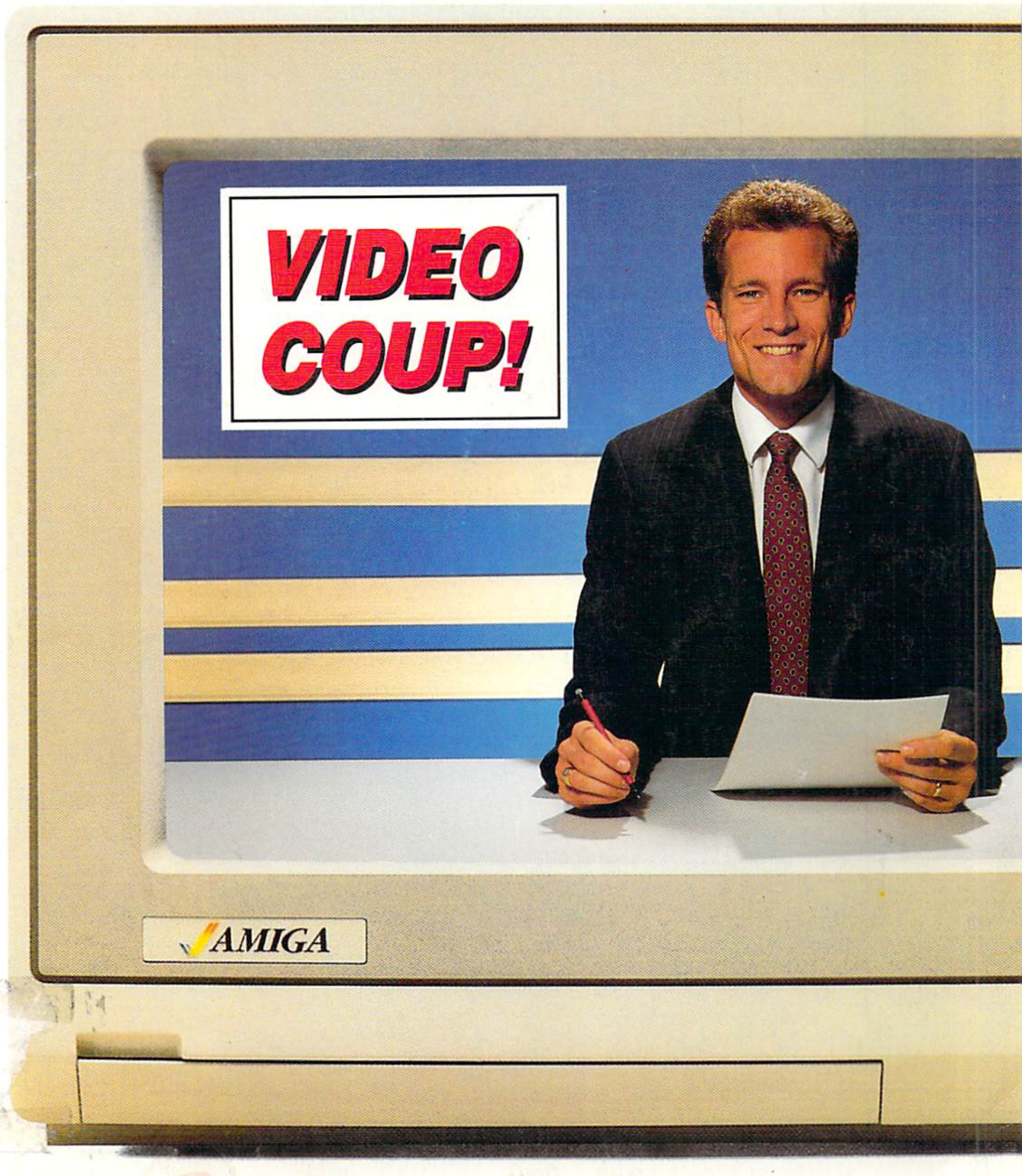
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All-New Columns!

- **Multimedia Tips**
- **Best PD Picks**



THE BEAST IS BACK . . .



SHADOW OF THE BEAST II

The sequel to the Top Selling Amiga game of 1989

THE CONFLICT CONTINUES . . .

Your deadly struggle for freedom against the dark forces of tne Beast Lord is now but a painful memory. You try to forget the anguish of the past by concentrating on your prize for success in the bloody battle: the return of your humanoid body.

But as you slowly adjust to your newly-won physique, the pain you thought gone is about to return . . . The Beast Mage has kidnapped your sister! She must be rescued before she falls foul of his dark arts. You journey to a hostile alien world to face the malevolent hosts of the Beast Mage and interact with more friendly characters to learn of your unfamiliar surroundings.

You must fight your way through many enemy-infested levels collecting and using weapons and objects to aid your crusade towards conflict with the Beast Mage . . . before he makes your sister his own!

Amiga $59.99

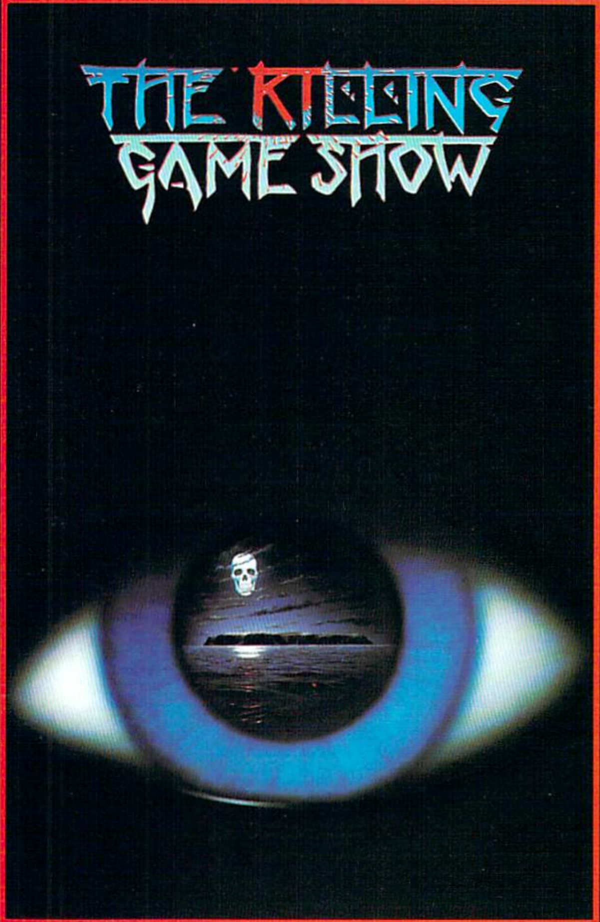








AND ON THE OTHER CHANNEL . . .



THE KILLING GAME SHOW . . .

. . . WILL HAVE YOU CLIMBING THE WALLS – IT'S THE ONLY WAY OUT!

Suited in limited-protection armour you're the unwilling contestant on THE KILLING GAME SHOW. In front of a TV audience of millions you must battle your way to the top of 16 Pits of Death infested with Hostile Artificial Life Forms specially created by THE KILLING GAME SHOW's manic scientists to give you a hard time.
But . . . don't forget the rising fluid or it's "next contestant time".
You must give the viewers their value for money – collect the awesome weapons and tools – if you can.
THE KILLING GAME SHOW will have you climbing the walls – it's the only way out!
First prize is your life – Don't waste it.

Amiga/Atari ST $44.99 Circle 703 on Reader Service card. *Amiga Screen Shots*

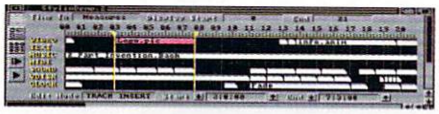


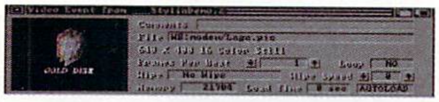




PSYGNOSIS

SHOWMAKER SIX STEPS TO CREATING YOUR NEXT VIDEO





1. SEQUENCE YOUR AMIGA ANIMATION AND GRAPHICS

Simply drag out a segment on the Video Track - the length indicates the duration over which the animation or graphic will play. You can specify frame rates of up to 30 fps. *ShowMaker* automatically determines loading time and loads the files before you need them to play, without interrupting the playback of the current animation. This means long running productions, limited by storage space, not your Amiga's memory. *ShowMaker* also features over 64 built-in wipes, fades, and transitions, and is compatible with most ANIM formats.



2. ADD MUSIC

Again, simply drag out a segment - this time on the Music Track. *ShowMaker* supports MIDI output, MIDI files, and SMUS formats. *ShowMaker's* unique auto-sync feature* ensures that your video always remains synchronized to the music!



3. PREVIEW YOUR WORK

With *ShowMaker* you can preview your production at any time during its development. Preview from any point or from the beginning. *ShowMaker* will also generate story boards and cue sheets which may be printed on any Preferences supported printer.



4. ADD LIVE VIDEO

ShowMaker gives you control over genlocks, videodisc players, and VCRs. Just tell *ShowMaker* when to cut in your video, and it will automatically seek to the correct position and fade in the genlocked signal at the right time. **



5. OVERLAY TITLING

Add titles to your production with *ShowMaker's* built-in Video Titler. You can even run credits on top of Amiga animations and graphics, and overlay the results on video.

6. PLAY IT!

You're done ! Hit the 'Play' button and the Amiga will play back your production in real time, automatically synchronizing the music, video, animation, and titling. A true Multimedia presentation. Record your production to videotape for a *first generation Master Tape !*



SHOWMAKER FEATURES

***ShowMaker* is the <u>first</u> program with :**

- Intelligent autoloading of animations and graphics *
- Animation playback synchronized to music in frames-per-beat *
- Intelligent background music looping, for easy creation of sampled soundtracks
- Complete control of genlock functions **
- Video titling over Amiga animation and graphics
- MIDI sound effect support
- External clock control (SMPTE / MTC) of music and animation
- Run *ShowMaker* productions from *AmigaVision*

***ShowMaker* also features :**

- Wait-for-click interactivity
- Production looping
- Storyboarding
- Cuesheet generation with printing

SHOWMAKER
THE COMPLETE DESKTOP VIDEO SOLUTION

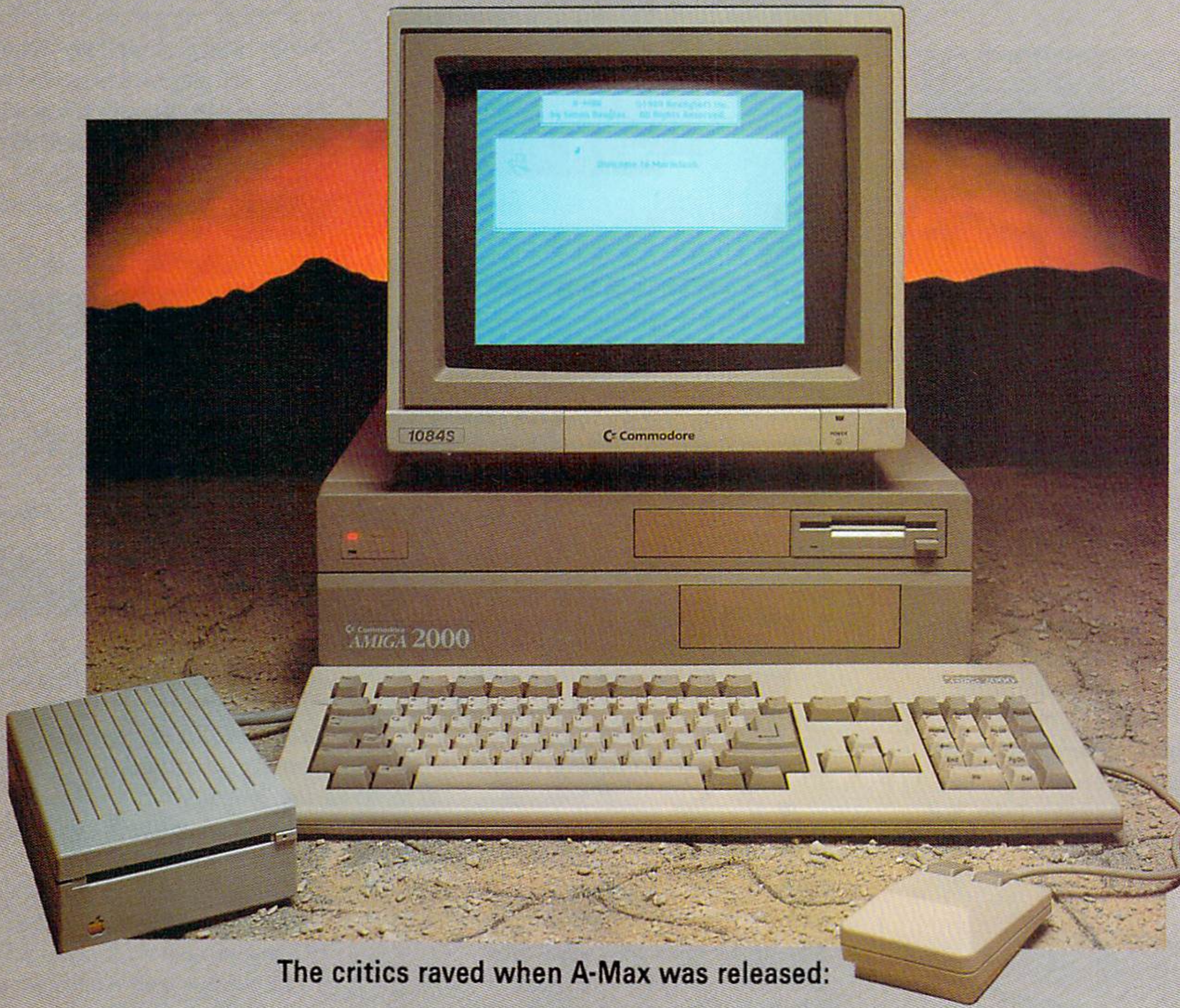
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P.O. Box 789, Streetsville,
Mississauga, Ontario
Canada L5M 2C2
(416) 828-0913

Circle 177 on Reader Service card.

* Patent pending
** Additional hardware required

A-Max II

ReadySoft's acclaimed Macintosh® emulator just got better!



The critics raved when A-Max was released:

"... compatibility with Macintosh software is excellent."
— Amiga World Oct. '89

"ReadySoft has set a new standard in computer emulation."
— AmigoTimes V1.8

Now we've just given them more to rave about . . .

Just as before, A-Max is a hardware and software combination that, once you supply Macintosh® 128K ROMs, runs most of the Macintosh® Plus productivity software at full Macintosh® speed.

Version II of A-Max is available in two configurations: A-Max II and A-Max II Plus. A-Max II is a cartridge that plugs into the Amiga's external disk drive port and has a connector for an Apple® 800K external disk drive. A-Max II Plus is an Amiga 2000 (or greater) card that gives you AppleTalk® and MIDI compatibility as well as allowing Mac® format disks to be used in Amiga drives.

A-Max II features include:

- Access to partitions on hard drives during Macintosh® emulation (supports most hard drive controllers).
- Access to Macintosh® SCSI peripherals such as the LaserWriter IICS®, hard drives and scanners through your Amiga hard drive controller's SCSI port.
- Improved handling of Amiga accelerator boards, for maximum speed and compatibility — software runs up to five times faster.
- Plays Macintosh® digitized sounds.
- Supports the use of Amiga mouse, keyboard, serial and parallel ports during Macintosh® emulation.
- Reads Magic Sac™ and Spectre™ disk formats (Atari ST® and Macintosh® emulators).
- Supported video modes include: 640×400 (interlaced), 640×200 (scrolling), 512×342 (Macintosh® standard size, interlaced) and 1008×800 with the A2024 or Moniterm Viking monitor and overscan screens are also supported.
- Supports PAL screen size 640×512 (interlaced).
- Uses all available Amiga RAM during Macintosh® emulation.
- A-Max II cartridge can be left connected to your Amiga during Amiga use.
- Built-in Apple ImageWriter® emulation for 9 and 24 pin Epson® and Epson® compatible printers..
- Transfer software to convert files from AmigaDOS to and from A-Max and Macintosh® formatted disks.
- Built in recoverable bootable RAM disk.

A-Max II Plus includes all A-Max II software features plus:.

- Compatibility with AppleTalk® networks and peripherals such as direct LaserWriter® printing.
- Ability to read, write and format Macintosh® 3.5" disks with standard Amiga 3.5" disk drives.
- Two fully compatible Macintosh® serial ports.
- Greater compatibility with Macintosh® MIDI sequencer programs.
- Board installs internally — no need for an external cartridge.

A-MAX II PLUS AVAILABLE FALL 1990.
Upgrade information will be sent to registered owners of A-Max Version I.

ReadySoft Inc.

30 Wertheim Court, Unit 2
Richmond Hill, Ontario
Canada L4B 1B9
Tel: (416) 731-4175
Fax: (416) 764-8867

Circle 87 on Reader Service card.

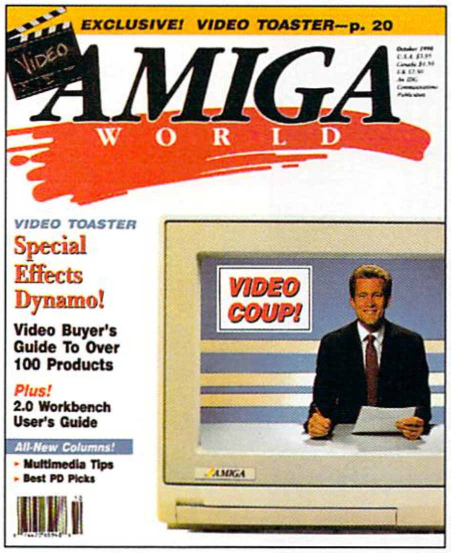
VOLUME 6, NUMBER 10 OCTOBER 1990

·C·O·N·T·E·N·T·S·

FEATURES

ARTICLES

COLUMNS



*As the graphics window behind our newscaster indicates, **AW** has indeed scored a video coup—and one in which the entire Amiga community will soon be sharing. Check out our exlusive in-depth report on the much-heralded Video Toaster. And don't miss our other video features, plus our A–Z guide through the all-new 2.0 Workbench.*

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GAMES

COVER PHOTOGRAPH BY ED JUDICE

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GVP Announces a Technological Breakthrough...

SERIES II™

THE NEXT GENERATION

in SCSI and RAM Controllers for the A2000®



IMPACT Series II

GVP's New SERIES II A2000 SCSI and RAM Expansion Controllers provide the ultimate hard disk and RAM expansion solution for the A2000. Choose from two new models:

The Series II A2000 SCSI "Hard-Disk + RAM-Card"

- **State-of-the-Art integration** packs a high performance SCSI controller, 8MB FAST RAM Expansion and a 3.5″ hard disk drive INTO A SINGLE A2000 EXPANSION SLOT!! Saves BOTH a valuable expansion slot and a peripheral bay!
- **Incredible SCSI hard disk performance** achieved through GVP's innovative new custom chip design, which provides DMA performance and unique direct dual port memory access to FAST RAM, eliminating typical DMA side effects under heavy graphics load.
- **Easy-to-install SIMM memory modules** allow flexible memory configurations from ZERO through 8MB. Supports 6MB FAST RAM configuration for BridgeBoard users.
- **NEW *FAAASTROM*™ SCSI Driver** offers optimum performance and includes such features as:
  - ✓ Supports virtually any SCSI device including, CD-ROMs, Tape Drives, IOMEGA Bernoulli drives, etc.
  - ✓ Fully implements SCSI Disconnect/Reconnect protocol, allowing overlapping SCSI commands to be executed.
  - ✓ Fully implements Commodore's Rigid Disk Block (RDB) standard as well as the new DIRECT SCSI interface standard.
  - ✓ Removable media drive support. Automatically senses cartridge changes and informs AmigaDOS, ensuring safe and reliable use of removable media SCSI drives.
  - ✓ Allows Direct AUTOBOOT from Fast File System Partition.
- **New INTUITION COMPATIBLE SCSI installation** and "tuning" utility included. Major features include:
  - ✓ ICON and gadget based INTUITION interface.
  - ✓ Bad Block Remapping of hard drives.
  - ✓ Auto or manual hard drive partitioning and AmigaDOS formatting.
  - ✓ Read and modify existing RDB parameters on hard disk.
  - ✓ Simplest and Easiest SCSI installation in the industry.
- **Low parts count (through VLSI Integration) EQUALS:** lower power, higher reliability, longer life and ultimate PRICE/PERFORMANCE! See TRADE-UP offer.

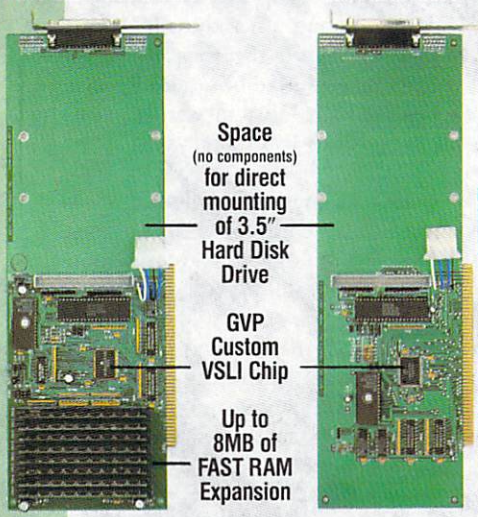
The Series II A2000 SCSI "Hard-Disk-Card"

- **Same as above** but without the 8MB FAST RAM capability.
- **Specially designed** for those users who don't need memory expansion but still need maximum hard disk performance at a budget price.
- **UNBEATABLE VALUE.** See $99 trade-up offer!

GVP's New *FAAASTROM* SCSI driver and installation software is also available as an upgrade kit for GVP's original IMPACT SCSI controllers, for ONLY $49.95. Offers major performance increase over previous GVP AUTOBOOT EPROMs.

New Series II 48MB Removable media hard disk drive. GVP now also offers the NEXT GENERATION removable media hard disk drive which offers increased capacity (48MB formatted) and major technological advances in cartridge air flow filtering design and robustness. Call for details.

Hard-Disk+RAM-Card — **Hard-Disk-Card**



SCSI TIMES — 1990

The ULTIMATE Trade-Up Offer???

GVP today introduced its new Series II product line and announced a bold new trade-up program, which is certain to further bolster GVP's dominant market share in the Amiga hard drive market.

Details of GVP's new TRADE-UP program are as follows:

- For $109 plus $6 for shipping (USA only), end-users can trade-up to the new GVP Series II SCSI "Hard-Disk-Card" (without drive) by simply sending in their present SCSI controller (from ANY manufacturer) together with a money order or certified check, payable directly to GVP.
- All trade-in controllers must be sent to GVP FREIGHT PREPAID.
- Owners of any GVP or Commodore SCSI controllers, are eligible for an additional $10 rebate, if they trade-in a FULLY FUNCTIONAL and working controller. These owners need to submit a certified check/money order for $105 only.
- For an additional $39, existing controllers can be traded-up to the new Series II "Hard-Disk + RAM-Card," which includes the 8MB FAST RAM expansion capability, populated with ZERO RAM.

"Let's Standardize"

GVP

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Dealers Circle 145 on Reader Service Card

Consumers Circle 62 on Reader Service Card



CHIEF CONCERNS

Cooking up a video storm with the Toaster as Lou's cave gets increasingly crowded.

DURING LAST FEBRUARY, Lou Wallace and I flew to Paris for DevCon. We ate good food, met good people, and saw some great new technology. On the way back, we flew through Brussels to avoid a terrorist threat to U.S.-bound planes. Where were we going next? To Topeka, of course.

For most people, Topeka would be a real letdown after Paris. Not for us. That's because hidden in an unoccupied floor of a building in downtown Topeka was a renegade video studio, a Video Toaster, food, and the maniacally funny magician/comedy team of Penn & Teller. This was Amiga history in the making, for on this fateful weekend, the now famous Penn & Teller Toaster video was made. Lou and I ate the food and got in the way of just about everyone. That was our contribution. And we saw the Toaster in action—for real!

I won't repeat the jokes. I can't tell you if Teller has a last name or vocal cords. But I will say this: We wanted a Toaster.

That wish has been granted. There is now a new item lurking in the recesses of Lou Wallace's cave-like confines. A real NewTek Video Toaster is now attached to several monitors, a Super VHS deck, and a video camera that's mounted on an electric motion-control device. This is the real deal, pal. This is why we decided it was safe to do another cover story about the Toaster.

The Toaster is just the beginning. We are hearing from a wide variety of vendors about other breakthrough products. People are starting to think big. And we will cover these as they appear. But for this October issue, we're having toast.

You Did It: Sue West of Commodore recently dropped me a line commenting on the *AmigaWorld* letters drive. That's where we coerce and cajole our readers into writing to important publications that ignore the Amiga. If you read this column regularly, you've heard about this tactic a million times. According to Commodore, which tracks the press, it's working. Sue sent me letters from six publications, all singing the Amiga's praises.

About a week later, she sent me the best one of all. The July issue of *Computer Graphics World* had three letters about the Amiga, along with an editor's note. Here's a brief excerpt. "These are just a few of the comments we've received lately, encouraging us to include more information about the Amiga. As a result, we plan to step up our coverage of new and significant advances in Amiga technology." Hats off to Amiga owners and letter writers George Bailey, Victor Osaka, and George Knocheland, and to *Computer Graphics World* for listening.

Mass Market: As you may have read in Last Licks, Commodore has picked up a variety of high-end mass merchandisers to carry the A500. Some who are still smarting from the game-machine stigma are distressed. They see it as a step back. I don't. I've talked to people who bought Amigas to play games. Now they are entering our animation contests, they are genlocking, and they are writing their own programs. I'm for anyone who is willing to sell an Amiga, and I congratulate Commodore on these new outlets.

While Commodore is picking up outlets to sell the A500 to the home market, IBM and Tandy are getting serious with low-end DOS machines. Put an Amiga next to an Intel 8086-based wimp of a PC and see which the consumer will buy.

***AW* Video Studio**: Lou's cave is generating excitement for reasons other than the Toaster. Sure, he's got Tequila and Planet Lust. But we've also got a ton of video equipment on the way. Time-base correctors, tape decks, more genlocks, edit decks. You name it, we're bringing it in.

New Employees: Along with new equipment come new employees. We added two new jobs and hired two dynamite people to fill 'em. John Wolfskill is our new Senior Writer, Technology. John has years of experience with video and computers, and most recently served as a technical editor at *PC Resource* here. Mare-Anne Jarvela, also a technical editor for the same magazine, has joined us as Special Products Coordinator. Among other things, Mare-Anne will be producing the *AmigaWorld* Toolchest, our exclusive bi-monthly software series, and she looks forward to any and all suggestions you may have.

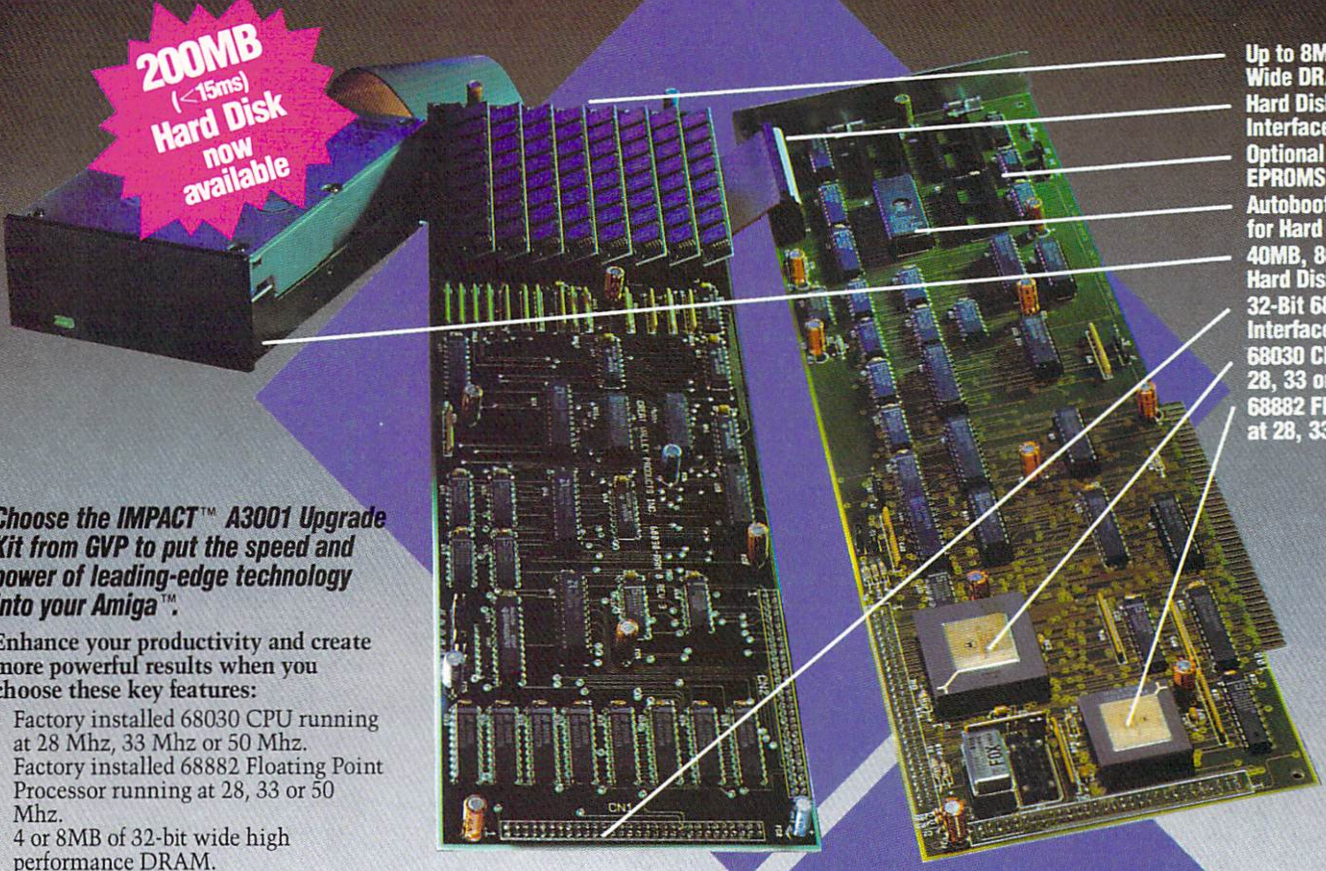
Quick Animation Reminder: We've started to get some truly phenomenal submissions to our second animation video, but are still looking for many, many more. We've set a November deadline, but the sooner you get your animations in, the more time we can spend thinking about music and storyboarding. So start sending! ■

Doug Barr

IMPACT A3001 UPGRADE KIT

Now Available with 50Mhz 68030 Acceleration

Create the fastest Amiga in the World with an A2000™ and our A3001 Kit.



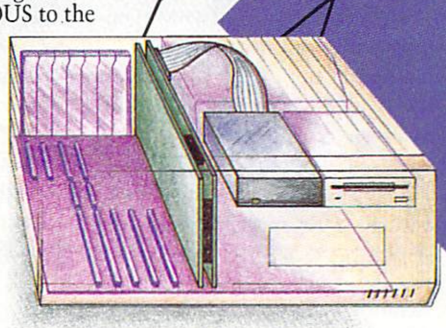
Choose the IMPACT™ A3001 Upgrade Kit from GVP to put the speed and power of leading-edge technology into your Amiga™.

Enhance your productivity and create more powerful results when you choose these key features:

- Factory installed 68030 CPU running at 28 Mhz, 33 Mhz or 50 Mhz.
- Factory installed 68882 Floating Point Processor running at 28, 33 or 50 Mhz.
- 4 or 8MB of 32-bit wide high performance DRAM.
- Built-in Autobooting High Performance Hard Disk Controller with data transfer rates well over 700KB/sec.
- High performance 40MB, 80MB or 200MB hard disk drive with an average read access time of less than 15ms (19ms on write) and 64KB read-ahead cache. If you already own a hard disk, this item can be optional.
- Asynchronous design allowing the 68030 to run ASYNCRONOUS to the rest of the A2000 improving GENLOCK compatibility.
- ZERO SLOT SOLUTION! With the A3001 Configuration along with the bundled 40Q or 80Q Hard Disk Drive ALL A2000 EXPANSION SLOTS ARE LEFT FREE FOR FUTURE UNLIMITED EXPANSION!

All A2000 Expansion Slots Free!

A3001 Upgrade Kit Installed



When you compare, the choice becomes clear. GVP is unbeatable for price and performance.

COMPARE:	A2000 + GVP A3001	CBM A2500/30	CBM A3000™
68030 CPU	Y	Y	Y
Maximum CPU Clock Speed available & shipping *Today.*	50Mhz	25Mhz	25Mhz
Factory installed 68882 Floating Point Processor Clock Speed.	28-50Mhz	25Mhz	25Mhz
Hard Disk Controller on 68030 Processor Board.	Y	N	Y
Number of *Open* Amiga expansion slots with hard disk drive and 8MB *Fast* memory installed.	5	3	4
Allows user to start with low-cost A2000 Amiga system and grow all the way to 50Mhz 68030 performance without sacrificing anything.	Y	N	N
Brand name vendor with solid reputation.	Y	Y	Y
Fully implements 68030 Burst Mode up to 33Mhz.	Y	N	N

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REPARTEE

Comments, complaints, and concerns

from AmigaWorld *readers.*

The Whole Truth?

I COULDN'T AGREE more with Doug Barney regarding Apple's and IBM's multimedia hype. A "typical" Amiga user, interviewed in a recent IBM-magazine article on "state of the art" technology, was depressed because Amigas cannot handle the speed that 3-D rendering requires. This was the guy who signs the corporate checkbook for purchases; I guess no one told him about the 50-MHz accelerator boards.

A promo for a recent TV show described "porting applications from a Mac to an IBM." What they actually did was port *data* for a *single application* between the machines. And they had to use an external drive to do it! To top it off, the presentation had a "we thought of it first" tone. Anyone want to show them how to port pictures between the IBM and Mac using an Amiga?

We've long had a truth-in-advertising law. . .maybe it's time for a truth-in-suggestion law!

Tim Kramer
Chicago, IL

Able Assistant

MTV RECENTLY sponsored a contest to produce a music video for Madonna's hit song, "Vogue." I had the opportunity to incorporate computer graphics into someone else's work, and our video was one of ten winners nationwide. I was able to achieve this award using the excellent Amiga products.

Blane J. Perun
Pittsburgh, PA

What's Greater?

I KEEP COMING across the term "high-end application" and never see any follow-up on it. Why? If the broadcast industry is to embrace the Amiga, and if aspiring video people want to know more about how the Amiga works in that industry, then why not cater to both groups? Trying to find out about broadcast requirements and new technology from the broadcast side is virtually impossible, as trade magazines are not usually available on the newsstands.

I could care less about games when the Amiga is so fantastic for creative work and capable of far more than home video.

Ron Mauder
Pittsburgh, PA

IN RECENT MONTHS I have noticed a disturbing trend in *AmigaWorld*: the invasion of the never-have-fun old men. This is apparent from the tiny number of game ads and game reviews you currently publish.

It was we game enthusiasts who put the Amiga on the map. It was we who allowed the Amiga to tread water long enough for the rest of the world to notice it. Now that the Amiga is doing somewhat well, you are overrun by corporate types who want to use it as an abacus and argue about how to run Unix on a Mac emulator.

I feel you are leaving the Amiga's first and foremost users high and dry. If I don't see some changes, I, probably along with many others, am going to let my subscription lapse.

Mike Czykun
Denver, CO

Go Promo

HAVE YOU NOTICED that many personal-computing magazines have recently given the Amiga strong coverage? And don't forget its increased visibility at major computer chains and the two clips that appeared on CNN.

The Amiga still needs to be promoted so that people can find information without pulling teeth. Too often I have seen interested parties dejected by a lack of knowledge about the Amiga on the part of IBM dealers, not knowing who else to contact. I hope everyone out there advances the cause of the Amiga—reasonably (fanatics scare people) and without attacking other machines. (The Amiga is not perfect; wouldn't you like the software choices afforded MS-DOS owners or the scientific/graphics packages for Mac IIs?)

For the first time in years, I am very positive about the Amiga being recognized as a "real" computer. Congratulations on your efforts, and. . . let's keep things rolling!

Jeffrey C. Wakefield
Atlanta, GA

Chips and Disks

IN THEIR LETTERS, Mr. Shackelford and Mr. Jordan missed the point about the custom chips (Aug., p. 8). The lack of 32-bit Paula, Denise, and Agnus chips is only the symptom of a larger problem: these chips' lack of speed and inability to address memory.

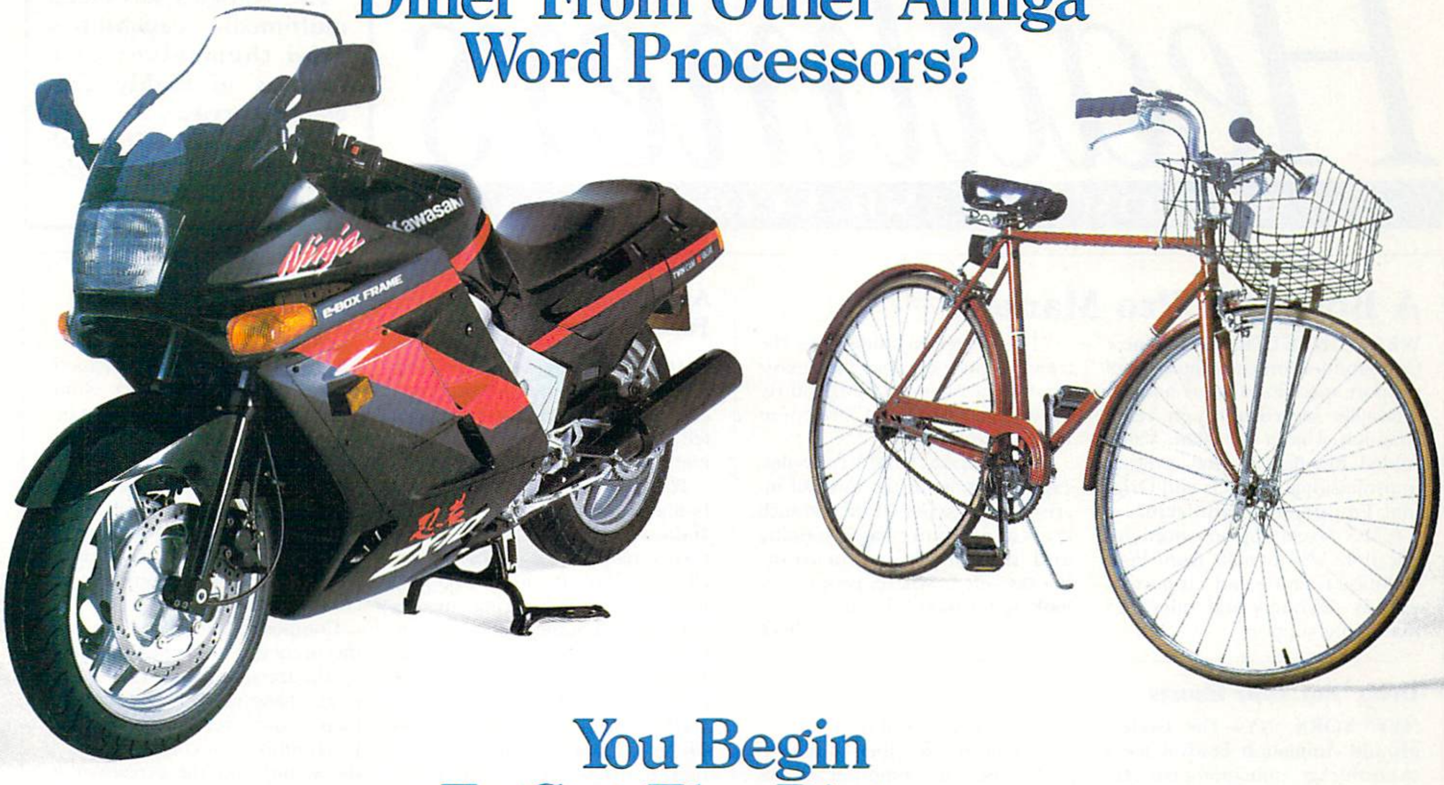
Commodore should be working on a true multiprocessor system with custom chips to rival the processor's power. The company must fully exploit the Amiga's architecture now, because not only are IBM and Apple getting the hang of it, but so are the deep-pocketed Sony and Fujitsu. CBM knows that catching up is hard to do.

By the way, the overzealous statement that ". . .Commodore will be the first to produce a CD-based multimedia. . . system at an affordable price. . ." (see "Million Dollar Baby," July, p. 19) is in error. In the spring of '90, Head Start introduced a stock computer with a CD-ROM drive for less than $3400 list!

Kenneth Griffin
Bartlett, IL

Send your letters to: Repartee, *AmigaWorld* Editorial, 80 Elm St., Peterborough, NH 03458.■

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Headliners

NEWS FROM THE AMIGA COMMUNITY

> **"The Amiga's advanced multimedia capabilities lend themselves to a number of highly specialized areas. . ."**
> ***—Ron Stanczak Commodore VP of Sales***

A Boost for Pro Markets

WEST CHESTER, PA—A new Commodore/Amiga program will support specialized areas not traditionally served through retail channels. Under the plan, Value Added Resellers (VARs) catering to professional markets and Original Equipment Manufacturers (OEMs) developing advanced applications will benefit from both technical training and support, as well as discounts and sales and marketing support.

"This program underlines the tremendous potential that exists for Amiga-oriented OEMs and resellers," stated CBM President Harry Copperman.

Ron Stanczak, CBM VP of Sales, expects results in the form of increased Amiga penetration in such areas as computer-based training and interactive applications (kiosks, etc.), where people are looking for total solutions.

—BGT

Drop 'Em Your Shorts

NEW YORK, NY—The Underground Animation Festival seeks to encourage animation pros, students, and hobbyists in the same way that television's "America's Funniest Home Videos" champions amateur videophiles. The Festival plans to award over $5000 in prize money to winners of its contest, which requires no entry fee, poses no restrictions, and offers a separate category for youngsters. Some entries will become part of a show that will tour museums, colleges, and theatres.

Submit any number of animations (not only computer shorts, but cel, stop-motion, claymation, and other forms are accepted) in VHS, 8-, 16- or 35mm, or any other format, by November 30 (entries received after the deadline will be entered in the 1991 Festival). For submission forms and regulations, contact the Festival folk at 210 E. 39th St., New York, NY 10016, 212/679-3800.

—BGT

Amiga Aids Testimony in Federal Court Trial

CHICAGO, IL—The key exhibit in a patent-infringement trial concluded this summer in Chicago's federal court was a series of animations produced on the Amiga.

Plaintiff CMI Corp. of Oklahoma City, OK charged that Astec Industries, Inc. had infringed on CMI's patents for asphalt recycling. To show the judge and jury just how asphalt drum mixers work and what the differences are between the five types thereof, D.L. Richardson, an animator and Amiga enthusiast who works for CMI, created the animations on his Amiga. Once finished, he transferred his work to videotape, which was shown in the courtroom simultaneously on four 27-inch monitors.

"The presentation was very successful," said Richardson, "as evidenced by the decision in our favor." Apparently so. . . the jury awarded CMI $4.45 million plus interest after finding Astec guilty as charged.

—BGT

Screen Play

HOLLYWOOD, CA—With 30 minutes of exciting Amiga-generated animation, Robocop 2 has *got* to be a hit. The Amiga is instrumental in one of the movie's most exciting scenes, wherein Robocop foils evildoers by injecting a virus into their mainframe computer. When they try to stop him, the villains encounter a digitized version of an armed and dangerous Robocop warning them to back off.

Paul Sammon, the film's computer-graphics supervisor, and Mike Ribble, its working artist, used an array of Amiga products to create this sequence. With Digi-View, they digitized three full-figure color photos of Robocop: with his arm pointing straight up, part way down, and directly at the camera. By extracting Robocop's arm from the digitizations, they created six other frames to place between the originals for a more refined transition.

Using PIXmate, they played in background color. Unlike most animators who strive to smooth out jagged, pixelized edges, Sammon and Ribble actually added them! According to Sammon, they had to "dirty it down" to make the Robocop image look as though it came from a video game. Using DeluxePaint III, the two cleaned up the frames, created a cartoon-style balloon "Bang" to pop out of Robocop's gun, and animated the sequence. They wrote the "Back off, creeps" warning with TV*Text Professional, and displayed it with Elan Performer.

Although Amiga-generated animation is becoming increasingly common in movie production, its role in Robocop 2 was unusual. Most producers and directors routinely send graphics and animation work to post-production houses, which often take weeks to complete it. In this film, however, the Amiga generated animations concurrent with the principal photography—inexpensively and on location. At one point, when director Irvin Kershner thought one sequence was moving too slowly, Sammon and Ribble ran it back through the computer, sped it up, displayed it, and then dumped the corrected animation on ¾-inch tape with a genlock in just 25 minutes!

—Carla Barker

A Shy Maestro in Black-Tie Territory

LA JOLLA, CA—Pianist Kenneth Bookstein and composer Ronn Yedidia helped bridge the gap between "serious" music and non-traditional instruments in a summer concert on the west coast. Performing with Bookstein was a 2.5-megabyte, 68010-equipped A1000, which was outstanding in heading up a full electronic orchestral accompaniment.

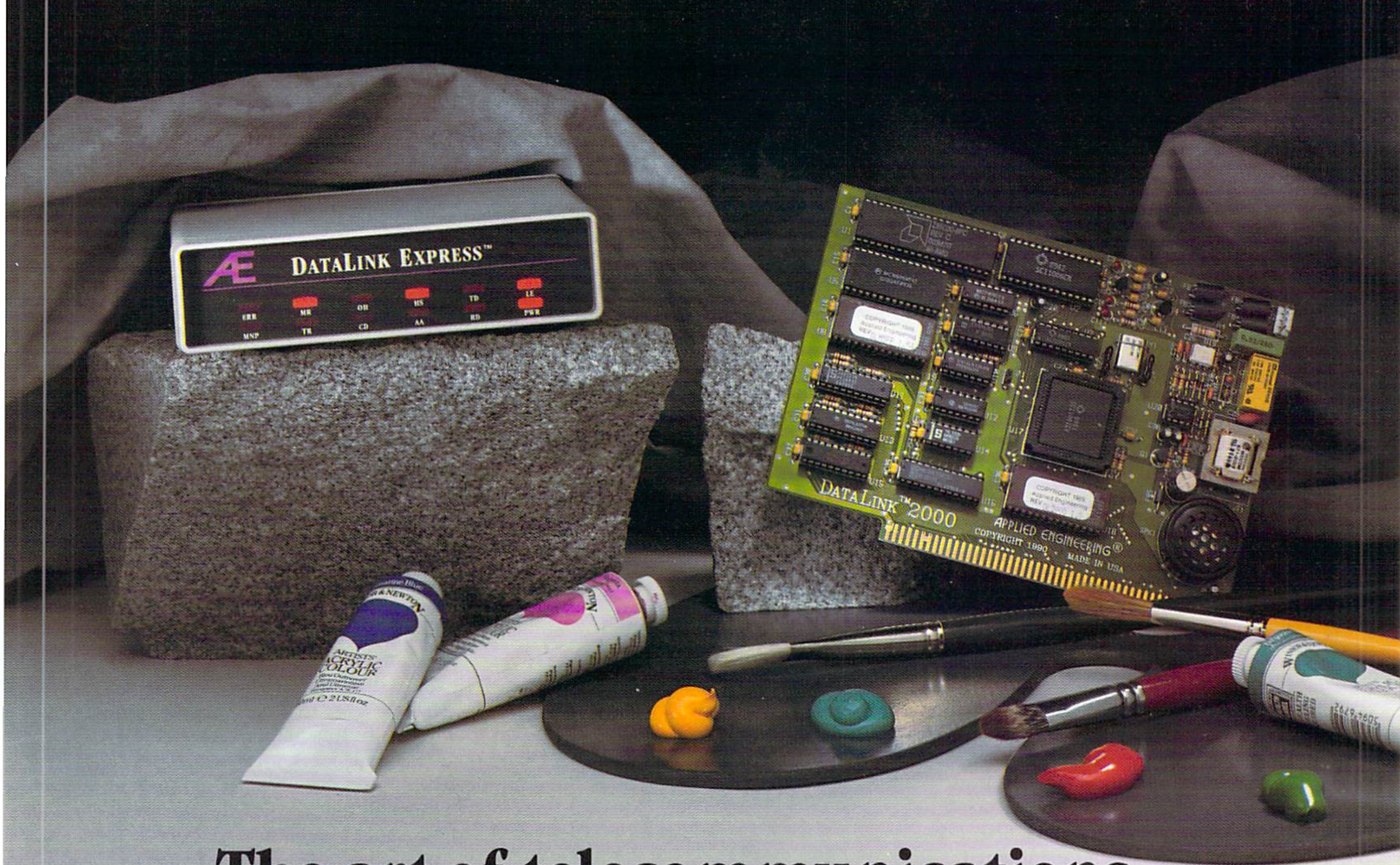
Composer Yedidia conducted the orchestra of sample players, synthesizers, and mixers from off stage, using the Amiga to change their sound levels. "We could have programmed the computer to mix the sound, but the accoustics in each auditorium are so different—I needed someone there with me," Bookstein said.

According to the performer, this event marked the first time a large-scale symphonic piece had been performed using electronic instruments. Although computer-based music is generally accepted in commercial- and pop-music forums, Yedidia's Concerto for Piano and Electronic Instruments represents something previously unheard of, explained Bookstein. Because it is so difficult to convince a professional symphony to perform new work, electronics allows a composer to have his piece played and heard—perhaps resulting in attention and a traditional performance: "It's a way of breaking through."

Amiga music connoisseurs in the New York City area can catch Bookstein and Yedidia in a similar performance sometime later on this spring.

—Jan Jackson

Headliners is compiled by Barbara Gefvert Tyson. Send your news bits to Headliners, *AmigaWorld* Editorial, 80 Elm St., Peterborough, NH 03458.



The art of telecommunications.

Introducing two new state of the art modems. Applied Engineering's DataLink 2000™ and DataLink Express™, the most feature-packed 2400 baud modems available for the Amiga. Bring home a world of information...from up to the minute flight information to whole libraries of resource materials. Access countless bulletin board services. Even download free software and games.

For Amiga 2000s, 2500s and 3000s, the DataLink 2000 (above, at right) is the internal board that plugs directly into one of the computer's internal expansion slots.

For ALL Amigas, the DataLink Express external modem (above, at left) plugs into the computer's serial port. DataLink Express features a twelve lamp status light array and AE's exclusive "Line Engaged" indicator to show a shared phone line is in use.

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REVIEWS

Service Industry Accounting

A program for the business of the hour

By Gary A. Ludwick

FROM AUTO REPAIR to legal practice, billing by the hour is the rule, but until now, only manual-entry time cards or billing diaries were suitable for such businesses. . .at least for those relying on the Amiga. Brown-Wagh's Service Industry Accounting (SIA) is the first Amiga accounting program oriented toward businesses where labor—not goods—is the primary billing item.

Books Worth Reading

Like its cousin, EasyLedgers (a goods-oriented accounting package also by Brown-Wagh), SIA features a graphic interface that presents the program in five sections: The Purchase Book (accounts payable), Sales Book (receivables), Ledger Book (general ledger), Inventory Book (stock control), and Job Cards (projects in progress). These books are organized in the same way most service businesses set up such manual entry books or files, and each contains pages that you can flip through by using the mouse.

The Sales Book asks you to enter all the necessary details of each client you serve: company name, mailing address, contact, phone number, credit limit, sales terms, sales-tax situation, and pricing structure. Because you can fully customize each customer file, the program is extremely flexible. You can place customers on succeeding pages in alphabetical or any other order. Tabs for each two-page spread make finding any customer a snap.

The Purchase Book, where creditor and supplier information is recorded, is organized similarly. You should get your accountant's help to set up the Ledger Book, which contains all the fiscal and account information that reflects your business's financial condition.



SIA is the best accounting package available for this type of business. It helps you control inventory and, if you keep it updated, it lets you see what's happening on on a day-to-day basis. You can also use it for point-of-sale to generate invoices, and it lets you record invoices and change them if needed. We haven't found any bugs in SIA. The only thing I don't like—and this, as with double-entry accounting, is intrinsic to the process—is that it is not easy to correct mistakes. Also, I would like to see the developer include a payroll system.

Lance Hutchinson
Northfield, MN

Parts and supplies are logged in the Inventory Book. Here you can maintain not only the cost of these items, but percentage mark-ups and fixed selling prices as well.

An Hour Past Figures

In service businesses, billable work is project oriented, and income is related to time spent and costs incurred. Thus, the Job Card file, which takes the place of the manually generated job ticket or work order, sets the direction for the entire SIA package. To set up a project in SIA, you open a job file, assign it a number and a title, describe it in detail, and assign it to a customer from the Sales Book. From that point on, you use the card to record hours, expenses, outside purchases, and everything else related to that job's billing.

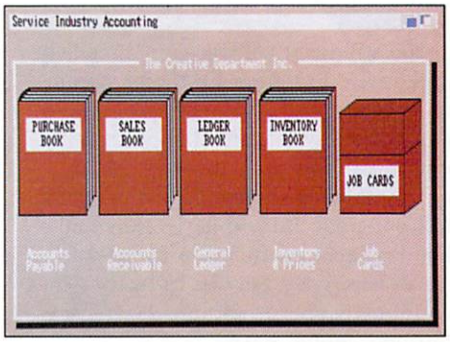
Once you complete a project, you can do the invoicing directly from the Job Card file. SIA provides printing functions for both pre-printed invoice forms and blank paper. It can print detailed invoices that list every hour and all materials, or those that present only cumulative totals. In addition, it can automatically mark up all purchases and hours, figure the sales tax, and post those totals to both the Sales Book and the General Ledger!

Without getting into bookkeeping practices and procedures, suffice it to say that once properly set up, SIA is about as automatic and transparent a bookkeeping system as the non-CPA is likely to find.

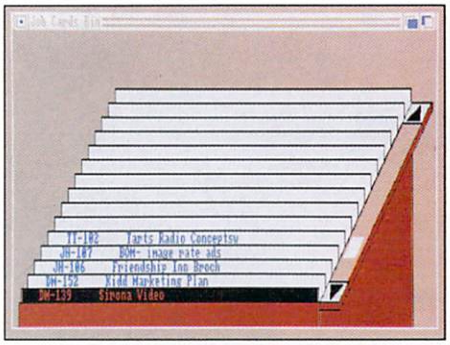
You can implement an employee roster that holds both a net (salary, hourly, or commission) and a billable hourly rate for each person. In the job-description file, which is automatically configured when you start up SIA, job functions are assigned to a numbered table. (In an ad agency, for example, these functions might be labeled copywriting, art direction, typesetting, account service, meetings, new business, and so on.) You can use these job-function codes when entering employee hours to a Job Card, and thus determine not only how many hours each employee is billing, but how their time is being spent and which areas are most time intensive. This setup also lets you print a complete breakdown of time spent to give to customers.

Credits

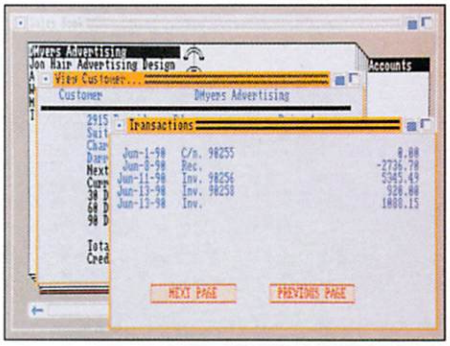
Brown-Wagh promotes SIA not as a conventional accounting program, but as a



Don't hit the books. . . just click to access the various modules.



The Job Card file distinguishes SIA.



Sales are up—at least on the screen.

business-management system. For once, the developer's claim is not hyperbole. It is not only accurate, but perhaps even modest! SIA is extremely powerful and intuitive, and information transfer from book to book is, in most cases, completely automatic. Write an invoice from a completed Job Card, and SIA updates all other affected books and accounts—with one puzzling exception: While you can post outside purchases to Job Cards, you must also post them to the accounts-payable book manually.

SIA provides an incredible number of management reports (39 by my count), including accounts receivable, customer mailing labels, staff analysis by job function, and all the usual balance sheets, income statements, and profit-and-loss statements. So far, I have yet to need information that SIA can't provide in just seconds.

The manual is exemplary. Its tutorial section does a good job of introducing you to various features and providing a basic understanding of accounting principles.

You'll spend a week or two in gathering and entering all the information required, but once this initial phase is accomplished, SIA will give you more information, and therefore more control over your business, than you've ever had before.

YOUR TURN!

SIA is much more handy than anything else we've seen. If you keep up with the program, you can pull a balance sheet or expense report quickly and easily at any time. It is a bugger to set up—not because there is anything wrong with the program, but because you must know accounting. With accounting software, you cannot make changes to books as you can with a database. But the program gives you an audit trail, and if you understand debits and credits, it's very, very good.

I wish you could make pricing changes on the fly; as it is, once you have begun an automated invoicing or job-costing process, you are stuck with the price that's in the program. The dump-to-spreadsheet feature is very nice. It lets you select any fields for import into Superbase, MaxiPlan, or Lotus 1-2-3. Getting around in the program is easy, and you never have to use account numbers, which is pretty neat. I hope Brown-Wagh updates the program to provide more of the features available on the IBM version.

Tim Hehr
Northfield, MN

DEBITS

With mediocre programs, only major errors or problems get a reviewer's attention. But with truly excellent packages—of which SIA is one—the small problems and inconsistencies seem more intolerable than they really are.

On boot-up, SIA requires you to type in the date and to click on directory listings to define a path to its data files. The program should be able to read the system date and should provide a definable default path that's kept as a permanent look-up file.

Then, because SIA often requires you to move from keyboard to mouse and back again when entering data, the process takes more time than it should. The graphic approach to all the program's aspects is great, but I wish there were a way to select gadgets ("radio buttons") and boxes from the keyboard.

Also, as good as SIA's printing facility is, it needs more flexibility. For instance, ►

I prefer printing invoices on my letterhead, but SIA provides no option for this or any other customization.

I would also like to see a facility that accepts purchase-order numbers and then prevents you from closing that job until it can account for all purchase orders with invoices received. None of SIA's debits are even close to being fatal. They are simply minor blemishes and places for improvement.

You will need your accountant's help and advice in setting up the program, and there will certainly be questions along the way that the manual is not equipped to answer. Finally, SIA requires daily massaging to live up to its full potential. But, while I rarely make blanket recommendations about software, here goes: Service Industry Accounting is one program every service business should have.

Service Industry Accounting
Brown-Wagh Publishing
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Los Gatos, CA 95030
408/378-3838
$99
One megabyte required.

Tiger Cub

Feline in the mood for music?

By Steve Quinzi

TIGER CUB, DR. T's new entry-level MIDI package that's billed as "the music program for the rest of us," features a 12-track sequencer, an easy-to-use graphic editor, and a budget price. It also includes QuickScore, a simple transcription program that can display and print your sequences in standard musical notation.

Tiger Cub comes with two disks: the program disk containing the Cub and QuickScore programs, and an auxiliary disk with sequence examples and sampled sounds. Tiger Cub itself is copy-protected with the key-disk method, but QuickScore, which works only with Tiger Cub, is not. Those scraping by with 512K are out of luck with this program—it will not run with less than a meg of RAM.

Leaving From 12 Tracks

Cub's Tape Recorder screen is laid out much like the Track-mode Record screen of Dr. T's Keyboard Controlled Sequencer (KCS). Instead of KCS's 48 tracks, however, Cub has 12. These tracks are arranged in rows, each with a box containing the track's name, MIDI channel assignment, instrument (internal Amiga sound or specified external MIDI source), and space for comments. There are also buttons to solo, mute, or assign each track to a group.

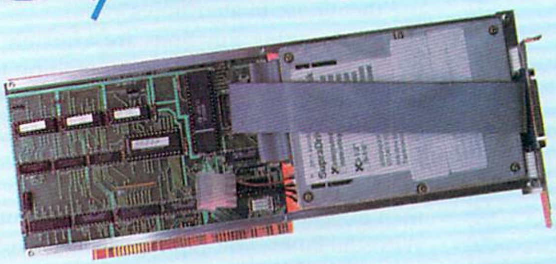
The control panel provides the familiar transport controls: play, record, fast forward, rewind, pause, and stop. There is also a measure/beat/step counter, a real-time counter, a visual metronome, and a tempo slider with an adjustable range of 20 to 600 beats per minute. At the left is a group of buttons that allow you to record controllers and aftertouch, ►

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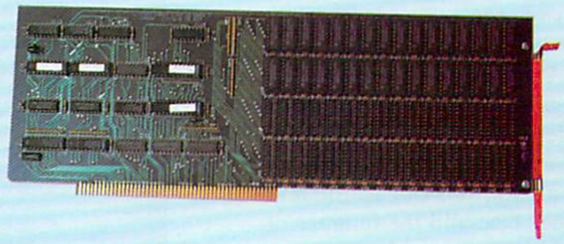
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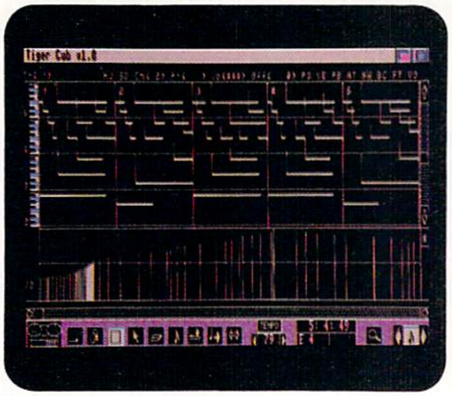
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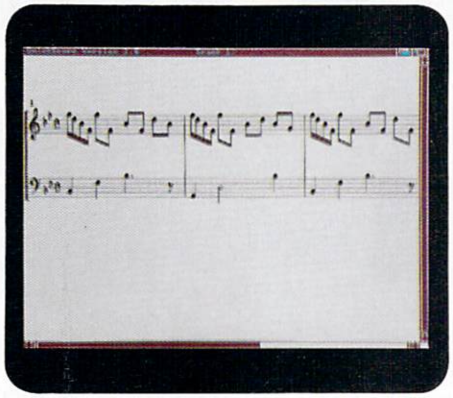
merge MIDI input with outgoing sequence data, rechannelize incoming MIDI data, and quantize on input. On the right is a button for defining a cue loop, and another that solos all tracks in a group.

The Internal Sounds selection in the Utilities menu opens a page for loading and assigning IFF samples. You can load up to 16 samples, each with a definable range, transposition, and volume. Drumkit opens a page in which you can document note assignments for various drum-sound sources (this is strictly a text function, with no MIDI capability). On the Instruments page, you can document the names and program change numbers of all the patches in your various synths.

Recording is a snap with Cub. If the piece you want to record is not eight bars (the default), choose Change Length from the Utilities menu to set it. (You can change the length again at any time.) Selecting Audible Metronome from the Play menu causes the Amiga to generate a click; you can set the number of clicks per beat and the number of count-in beats from another menu. Clicking the Record button or pressing F2 on the Amiga keyboard enables the recorder. Clicking the Play button, pressing the right mouse button, pressing the space bar, or hitting a key on a MIDI keyboard starts the sequencer. (I feel there are too many options for starting the sequencer and wish that the last two could be disabled.)



You can draw on Cub's graphic editor.



For standard notation, go to QuickScore.

With Auto Record enabled, the sequencer loops around the section, allowing you to record track after track without stopping. With each repeat of the loop, MIDI data is directed to the next open track. Without it, the sequencer stops recording after one pass, but continues in a play loop until you stop it.

DRAWING UP CHANGES

Click the Edit button on the control panel, and you are transported to Tiger Cub's graphic editing screen. Here tracks are displayed in piano-roll format, and notes are represented by bars on a graph, with the vertical position of the bars indicating pitch, and the horizontal position showing placement in time. Clicking on the track button at the top of the screen causes a different track to show on the graph. A keyboard is at the left side of the screen, and horizontal lines extend from each C note, so you can easily distinguish the octaves. At normal magnification, the vertical lines crossing the graph represent one measure (eight measures of 4/4 displayed at a time), but by zooming in or out, you can get as fine as 16th notes ($2^1/_2$ beats displayed), or as coarse as 17 measures per line.

When you move the cursor within the graph, a display window reports its location in time and pitch. This is most useful for editing. You can add notes to the graph by clicking the Note Draw icon and placing them with the mouse. The length of the bar represents note duration, while its vertical stem represents velocity. With the Edit Pitch, Edit Velocity, Edit Duration, Move Note, or Erase icons, you can use the mouse to alter notes.

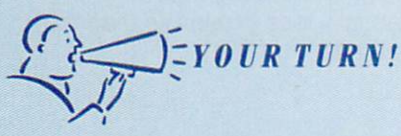
Global editing functions are available in the Edit menu. To select something to edit, choose either the Select or Horizontal Range icons. The former requires you to click on individual notes or draw a box around a group of notes; editing then affects only the selected note events. With the latter, you highlight an area of the graph; editing then affects all notes, controllers, and so on within that range.

The editing features that are available with Select are Cut, Copy and Paste, Pitch (transpose), Velocity (change by a given amount, set all equal, or scale), Time Reverse (which flips the selected area and plays it backward), Move (which offsets the selected group of notes a given number of steps), and Split (which copies the group to another track). In addition to the usual quantize features, Quantize Selected offers a variable swing factor, which can allocate more time to the downbeat than the upbeat in consecutive eighth notes. A bug in the quantize function causes an offset in triplet quantization, so if, for example, you want to quantize to quarter-note triplets, you must select eighth-note triplets. (Dr. T's knows of this problem and promises to repair it in the next program update.)

You can also apply Pitch, Velocity, and Time Reverse to events that are selected with Horizontal Range. Repeat, which can be used with both selection methods, repeats a selected group of events or area of time at given intervals.

In the Controller window, which sits

Continued on p. 94



Tiger Cub is fun for amateurs like me. The graphic-editing feature makes it easier to use than Dr. T's eight-track MRS. You can do everything with the mouse. The manual could be vastly improved, though. It doesn't even mention the demos on disk, for example, and I had to play around with the program to find out that it provides terrific internal sounds. (This means that you can make music even if you don't have a keyboard—but it's not documented!) Other parts are just plain baffling. But while this makes Tiger Cub hard to use, the program is still good for beginners. It is expandable through Dr. T's Multi-Program Environment, and it is well worth the money.

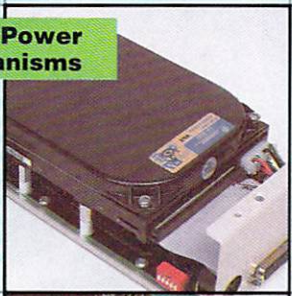
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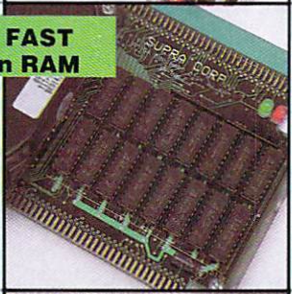


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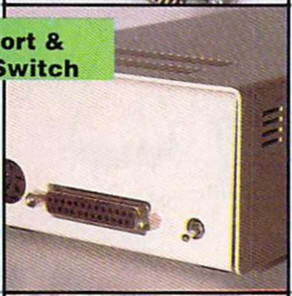
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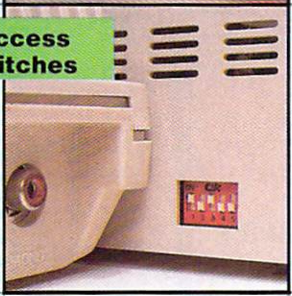
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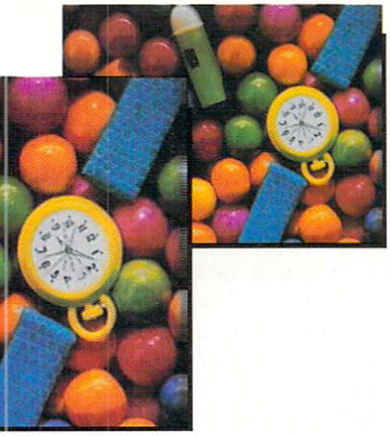
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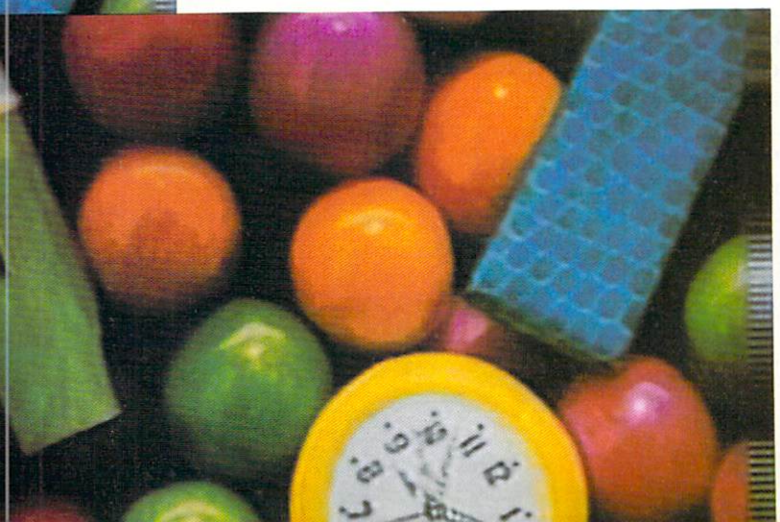
Done to a "T"

With its sophisticated hardware and impressive variety of video bundle of 24-bit paint and 3-D rendering/animation software, the Video Toaster may finally fulfill its promise as ***the*** *Amiga video solution.*

By Lou Wallace



Editor's Note: As of this writing, no Video Toaster units have been shipped to customers. As such, this is not a review but only a "hands-on" preview of the product. NewTek officials say that the first units for sale will ship in early September—although they advise that it may take several months before the company can fill all current orders for the product. AmigaWorld *will be reporting a full evaluation of the machine after it ships.*



YOU CAN'T MAKE an omelette without breaking some eggs—and maybe you can't make perfect "toast" without burning a few slices of bread first, either. For two years the Amiga community has been eagerly awaiting NewTek's Video Toaster, and some people have become very frustrated—justifiably—during that time. While Toaster units are not shipping to the general public as of this writing, it appears they will soon be on their way. And, quite honestly, I believe that it is going to be well worth the wait.

How do I know? Well, in early July *AmigaWorld* received one of the first Toasters to leave Topeka without a legion of security guards. Ever since the preproduction unit arrived—complete with its impressive array of bundled software—our offices have been the site of more video activity than a Hollywood set. While this article is only a preview, we feel that we have had enough independent, first-hand experience with the machine to offer solid preliminary findings to the many readers who have been clam- ►

oring for information about a very significant piece of technology. Few Amiga products have been the subject of as much speculation and rumor, and we think you may be quite surprised with just what *is* about to emerge from those Kansas cornfields.

Just What Is a Video Toaster, Anyway?

A simple answer to that question is not easy, because the Toaster does many different things. The Toaster essentially is a video switcher—a device that allows the user to change from one video source to another. Sometimes the change is very abrupt (a cut), where you are simply switching instantly from one to the other. At other times more complex changes—or transitions—are required; these are generally referred to as digital effects.

When the Toaster was in its early stages of development, the original concept was simply to produce a low-cost digital-effects device—specifically, a real-time video digitizer that would manipulate digitized images under software control so that the transformed images could then be encoded into a broadcast-quality video signal. This is what the general public has been expecting, and it won't be disappointed, because the Video Toaster *is* a very powerful digital-effects device, delivering a broadcast-quality NTSC video signal that meets the requirements for RS-170A ratings.

There is, however, a lot more to the Toaster—in hardware and software—than most people expected. This look at the Toaster's features will give you a clearer idea of what it is and what it can do.

The Toaster's basic hardware features consist of a production switcher, a DVE (Digital Video Effects) generator, a frame grabber, a character generator (CG), and two frame buffers. The software side is equally extensive and impressive, and holds several unexpected surprises, as you will see in just a moment. The main Toaster software program generates the on-screen control panels that allow you to access all parts of the Toaster's hardware. (See the sidebar "Toaster Tour" for a more detailed description of Video Toaster features.)

In addition, there is a remarkable group of programs bundled with the regular Toaster package, including: ToasterPaint, a 24-bit paint program that allows you to draw and paint in the 16-million-color frame buffers; LightWave 3D, an incredible 3-D ren- ►

Toaster Tour

HERE IS A quick rundown of some of the more important Video Toaster features.

Digital Video Effects

The top half of the main Toaster screen (see Figure 2) is devoted to four banks of digital video effects (DVEs). Only one is displayed at a time, but you can switch among them simply by pressing one of the DVE bank buttons labeled A-D. Each bank has 32 effects, ranging from cuts to wipes and transitions—all of which are available at any given time. This initial set of 128 is just the beginning, however, because, depending on how you have set the other features, you can create hundreds of other effects.

To give you an idea of the tremendous variety of wipes and transitions, a short list would include: pushes, blinds, fades, zooms, pixelization, snow, spins, trails, and slides—plus quite a number that defy easy description.

In the lower-right part of the screen, there is a software version of the switcher's T-bar, which can be controlled manually with the mouse or set to one of three speeds for automatic image switching. There are also buttons for freezing (grabbing) the current image into the frame buffers. In addition, you'll find gadgets for loading (and saving) 24-bit images from disk into either of the two buffers, which you can then use as a video source for the DVEs.

The significance of the Toaster's ability to use framestores for effects should not be minimized, because if the effects you need can be made from still images, you will not need a time-base corrector after all. By generating the images via the onboard frame grabber, LightWave 3D, or ToasterPaint, and loading them into the framestores, you can still make use of almost all the available effects. For example, perhaps one of your video sources is from live video and the other is a framestore created with LightWave 3D. You can perform an effect, a tumble, say,

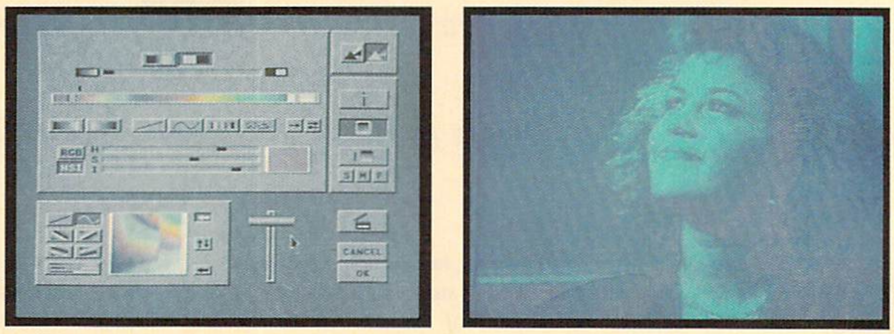


Figure 1. On the left is the Chroma FX image-processing menu. The photo on the right shows color effects being applied to incoming video signal.

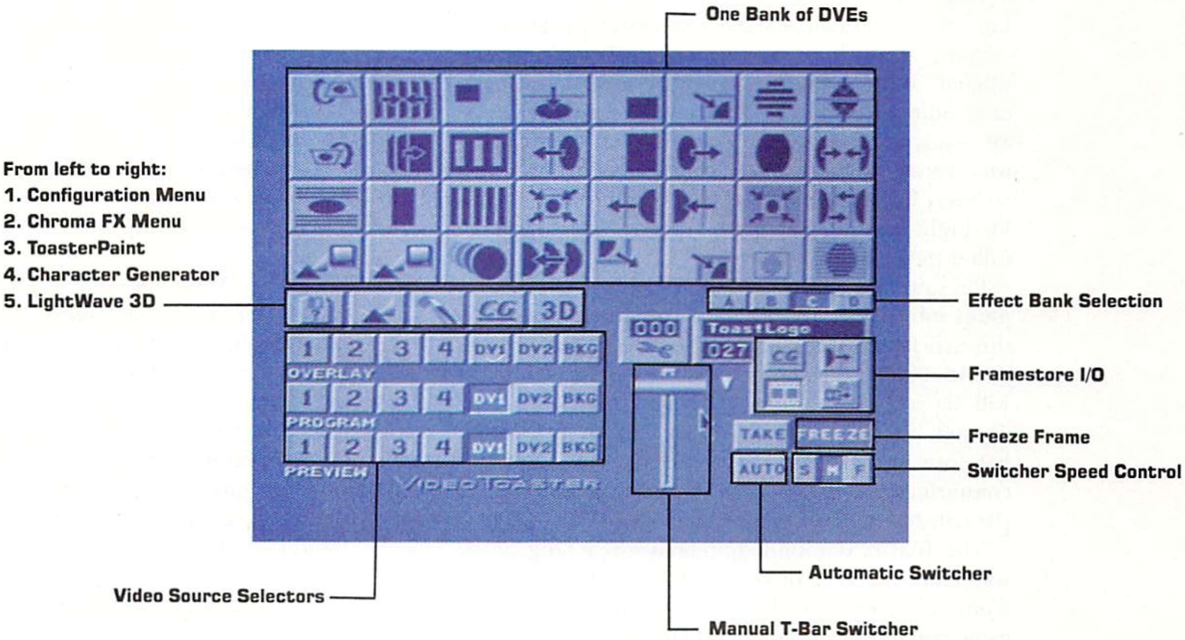


Figure 2. The main Toaster control screen.

from the framestore out over the live signal while recording the output.

Genlock

While not one of the major features, the Toaster's built-in genlock should not be overlooked. It does differ somewhat from the genlocks used in most Amigas because it does not display the combined image on your RGB monitor. Instead, it merely encodes the signals and sends them out as a composite-video signal, which can then be recorded in the normal manner. (This is a standard technique for using genlocks with most nonAmiga computers.)

Dual Frame Buffers

Because the Toaster's standard configuration includes two megabytes of RAM, it can support two complete frame buffers on board. Besides DVE effects, these can be used for loading disk-based images, for grabbing images from incoming video, as RAM for the supplied 24-bit paint program, and as a display device for the LightWave 3D animation program.

Frame Grabber

At the click of a mouse button, you can grab an incoming image in a full 16 million colors. The result is stored in memory, where it can be saved to disk. Through image-processing routines contained in the software, you can ensure that any motion present in the frame will be removed.

Character Generator

The CG is a full-featured, professional package capable of generating up to 100 pages of text using any of the 25 supplied fonts. You can use any of the 16 million colors for the fonts, and you can make every line on a page a different color with a different font if you wish. There is even a special "rainbow" font that exhibits a beautiful color gradation. The CG offers a wide variety of shadowing styles, including a special transparent shadow mode. You can display each page of text using either crawls or scrolling—effects that are very smooth and capable of being displayed up to 60 frames per second.

Color Effects

You can access another full set of effects through the chroma-effects menu (see Figure 1), which provides you with enormous control over on-screen color. NewTek indicates that such features as generating negatives and turning color images into monochrome ones are also possible. Other impressive effects noted in this area include posterization and solarization (the latter effect is shown in Figure 1).

Keys

Still another source of very powerful effects involves the use of keys. A key is a mask that determines what is displayed and what is transparent. (The transparent area could be blank or it could show another video source.) I have not used this feature, but according to NewTek the Toaster can be software-configured to use a wide variety of key masks—including even animated keys! Incorporating these key effects with some of the other DVEs provides an almost unlimited supply of effects. □

—LW

dering and animation package by Alan Hastings; and LightWave Modeler, a 3-D object-design program for creating the objects you use in LightWave. (See the sidebar "Bundles of Pure Joy" for more on the Toaster's additional software.) Thrown into the bargain is an assortment of software accessories, including a wide variety of fonts for the character generator and an even larger number of predesigned 3-D objects for LightWave (both supplied on disk in a package called the Phone Book).

Physically, the Toaster is a two-tiered board that plugs into the Amiga 2000's video slot. (At the time this article was written, it did not work properly in the A3000, but according to Newtek an A3000 board will be available after production of the current Toaster is ramped up to full speed.) In the rear, it has four separate composite-video inputs and two composite outputs. All connections are made via BNC (British Nut Connector) connectors.

The Toaster is a full-length board, reaching all the way from the rear of the A2000 to about one inch from the front case. It uses every bit of the space available on the video-slot side of the computer. For those users of MicroWay's flickerFixer, which also resides in the A2000's video slot, there is no need to despair. MicroWay now offers the DEB 2000, which is a device that creates a new slot for the flickerFixer on the PC-slot side of the Amiga and frees up the video slot for other devices, including the Toaster. Because the system in which I installed the Toaster used a flickerFixer, I installed the DEB 2000; both it and the Toaster worked just fine.

So, What Do I Need To Start Toasting?

Requirements for using the Toaster vary to some degree, but the basic system should be at least an A2000 or A2500 with 3MB of RAM and a hard disk. More memory is useful, and the larger the storage capacity of the hard disk, the better, because the 16-million-color framestore images are over 700K each and tend to eat up a lot of storage space on your disk. In addition, you must have a Super Agnus chip, as the Toaster software requires more than 512K of chip RAM.

You also need at least one composite monitor, although it is better if you have two composite display

Bundles of Pure Joy

ONE OF THE biggest surprises concerning the Toaster is the software bundled with it. While it has been common knowledge that NewTek was developing a 24-bit paint program and a 3-D animation package, few people knew that this software was to be included—at no extra charge—with every Video Toaster.

24-Bit Painting

ToasterPaint is a full-featured 24-bit paint program. The version we received used the Digi-Paint 3 interface, but we were told the final package will contain some design modifications that will give the program its own unique look and feel. The program makes full use of the 768 × 480 overscan display in 16 million colors (24 bits per pixel) generated by the Toaster.

The program works in a somewhat indirect way. The interface resides on the Amiga's display, and all rendering is done on screen in HAM mode. The 768 × 480 screen itself is a large virtual canvas. You scroll around it by moving the mouse, and it automatically tracks your movement—in much the same way that virtual screens do under Workbench 2.0. Painting occurs on the HAM display, although all the information is maintained internally as 24-bit data. When you want to see the image in its full 24-bit glory, simply click a button on the interface to send the image to one of the Toaster's frame buffers so that it can be displayed on the composite monitor. While not quite as satisfying as drawing directly into the buffer, it works quite well and really does not interfere with your creativity.

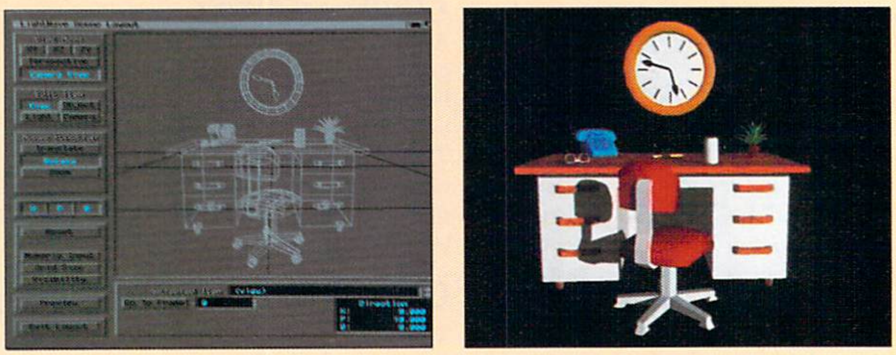


Figure 3. On the left is the LightWave 3D layout menu, showing a scene in Wireframe mode. On the right is the same scene rendered in 24-bit color.

3-D Rendering

As an avid 3-D modeler, I have to admit that my favorite piece of Toaster software is **LightWave 3D**. Having used just about every 3-D rendering package on the Amiga market, I can truthfully say that LightWave absolutely blows away everything else in its class.

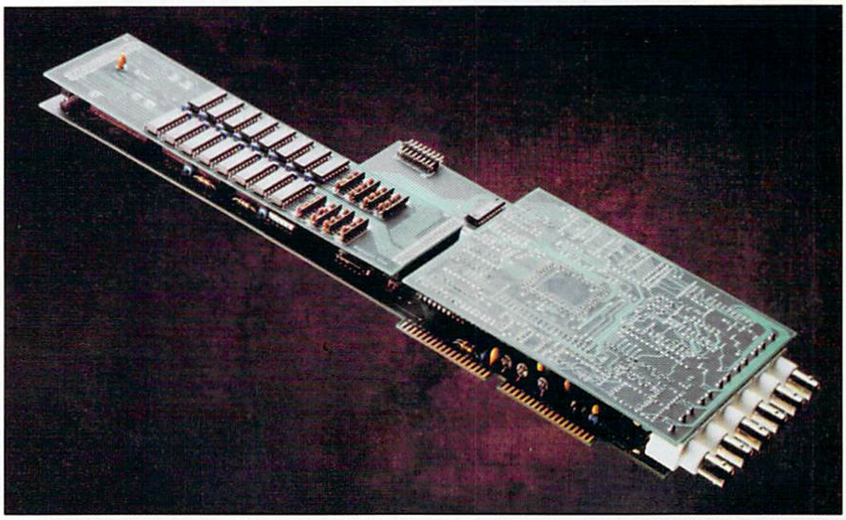
LightWave 3D is not a ray-tracing pro-

sources. The Amiga's own RGB display is used for the software control panel, while the composite monitors show the two active video sources.

Once you install the hardware and load the Toaster software, you are presented with the main Toaster interface screen (see Figure 2). Because the Toaster takes over the machine completely, you cannot switch to other Amiga software (although when you exit the Toaster program, it does return you to Workbench). From within the Toaster interface, however, you have easy and direct access to the character generator, ToasterPaint, and LightWave programs. When you exit these, you are returned to the main Toaster screen.

After satisfying the Toaster's Amiga requirements, you then need to consider what video hardware you need. If all you want to do is grab live images from a single video source, such as a camcorder or laserdisc player, simply connect it to Toaster input #1 and start frame-grabbing images. You can then edit these 16-million-color pictures with the ToasterPaint graphics program.

If your intention is to feed more than one video source into the Toaster, you need to invest in an additional hardware device called a time-base corrector(TBC). This is old news for video professionals, who have always used TBCs in their work, but it may ►



The Video Toaster.

gram; instead, it uses Phong shading to generate most of its images. The main advantage of Phong shading over ray tracing is speed. Rendering times in the latter, as you may have experienced, are unbearably long. LightWave, however, does make use of *some* ray-tracing techniques in its most realistic shadow-generating mode—which, of course, slows things down considerably.

The scene editor is a dream come true. You use only one window for viewing, and the scene is depicted in a full wireframe 3-D perspective within it (see Figure 3). If you want to translate (move) or rotate the scene or any of its components, simply move the mouse. Every action is fast and fluid, and most importantly, the action is in real time. Literally within minutes, I was able to create a fairly complex scene (see Figure 4)—and that was before I had even read the manual! Caligari (Octree) is the only package that comes close to LightWave in ease of use.

You move the camera and the various light sources in the same easy fashion as the objects. As an added touch, the lamps and cameras are fully visible in the scene; not surprisingly, they actually look like lamps and cameras.

Although a fairly wide assortment of textures is supplied, you can also wrap an IFF image to the surface of an object or use it as a background. You can specify how it will be wrapped, selecting planar, spherical, or cylindrical. A number of VideoScape textures, such as marble and wood, are also available. Other options you can use to affect the surface of objects include adding fractal noise, varying the frequency of the texture patterns, and specifying how light striking the object will be treated (diffuse, specular, gloss, transparency, bump mapping, or by adding fog in the air). You can even specify a reflection map, which reflects neighboring objects or IFF images.

FULL-BLOWN ANIMATING

LightWave 3D is not just a rendering program; it's also a full-featured animation package. It uses the key-frame approach, which should be familiar to users of most current Amiga 3-D animation programs. In key animation, you create a scene and designate it as a key frame. Skipping ahead a few frames, you make changes to the scene and specify the new scene as another key frame, and so on. The computer then creates all the frames in between the key frames. The result is usually a smooth animation that did not take hundreds of hours to create. You can use as many key frames as needed to achieve your desired results.

If you plan on creating animations using the full 24-bit, 16-million-color capability the Toaster provides, you will need additional hardware in the form of a transport controller and a video-tape deck that offers single-frame accuracy. (See the sidebar "Toaster Studio Source Guide" on p. 28 for some manufacturers of transport controllers.) This requirement would, of course, hold for any 24-bit animation package, not just LightWave 3D. □

—LW

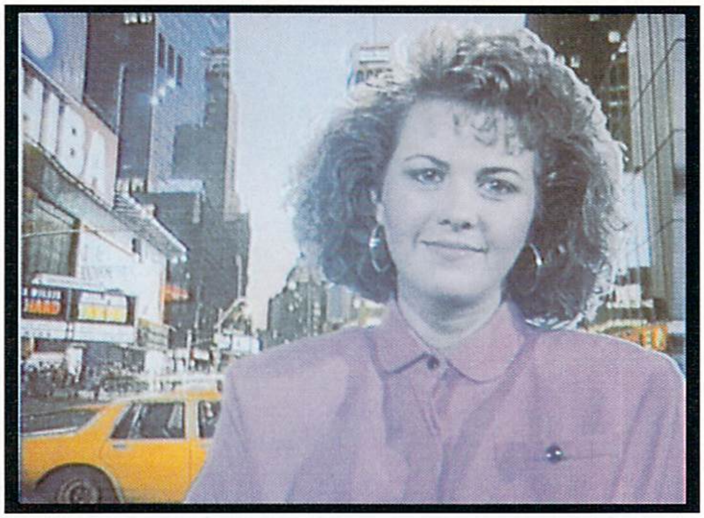


Figure 4. An example of Luminance Key effect. The image of the woman, taken standing in front of a white background, is superimposed over a second video image, a city scene.

come as a shock for the average Amiga user who was hoping to get a Video Toaster and plug in a couple of consumer VCRs. The reasons for needing a TBC (price range approximately $1500–$8000) are technical, having to do with the quality of the incoming video signals. Refer to the sidebar "Getting in Sync: TBCs" for a more detailed description.

Toaster Wrap

As you have seen from this quick preview and its sidebars, there is much more to the Video Toaster than most of us expected. In this one plug-in card, we find several professional video-production devices, which if purchased separately would cost many times more than the Toaster's $1595 price. In addition, the 24-bit paint program and 3-D modeling and animation software included in the package are in themselves worth hundreds of dollars. So instead of just a single-solution product, we now have one package that offers solutions for the Amiga video professional, the artist and the animator. I would not be surprised if many Amiga owners rushed out to get a Toaster, and there may be lots of people who will buy an Amiga just so they can use the Toaster!

The Video Toaster
$1595
NewTek
215 SE 8th St.
Topeka, KS 66603
913/354-1146
800/843-8934 ►

Getting in Sync: TBCs

IN THEORY, THE video signals coming into the Video Toaster should consist of 59.94 images, or frames, per second. In practice, however, the video frame rate of incoming signals is somewhat different, or out of sync, with this theoretical requirement. There are two different types of sync—horizontal and vertical—that are associated with each frame of video. (Think of sync, physically, as a signal pulse. In the case of horizontal sync, this pulse instructs the electron gun in the monitor to jump to the beginning of the next raster line at precisely the end of the previous one. With vertical syncs, which indicate the end of the current frame, the pulse instructs the electron gun to jump to the top left of the screen.) If the incoming signal is out of sync in either or both cases, the effect will be some degree of generalized distortion of the video image.

In the case of a camcorder sending live video, sync is not a real problem, because the Toaster is able to correctly sync itself to that single source. When you add a second source, however, even if it too is live video from another camera, the Toaster is able to sync properly to only one of them. The result is that the two signals get out of phase; to effectively perform any of the digital video effects using external video sources, the Toaster requires both sources to be in sync.

When you start supplying video from a tape source, sync becomes an even greater problem because of the mechanical nature of playing a tape—as opposed to a purely electronic signal from live video. In practice, the Toaster is not able to sync directly to even one tape source, let alone two. (While video from tape requires that you use a time-base corrector [TBC] with the Toaster, a single laser-disc signal does not. Evidently, the signal from the laser-disc player is not as far out of sync as that from the tape. If you plan on using more than one input, however, a TBC is still required even if both signals come from laser discs.)

As mentioned in the main article, all of this is old news to video professionals, who worked out the TBC solution long ago. The TBC takes two incoming video signals and syncs them together. (That does not mean that the two images are combined, merely that they are now both in sync with each other.) By connecting the two incoming video signals into a TBC, which then passes them on through to the Toaster, you are able to cleanly process the two images.

The good news in all of this is that TBC prices have steadily fallen of late and seem likely to continue to do so. Another significant development is that many camcorder and tape-deck manufacturers are now including TBCs as standard features on their equipment. (For a list of TBC manufacturers, see the sidebar "Toaster Studio Source Guide.") □

—LW



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Circle 5 on Reader Service card.

Toaster Studio Source Guide

IF YOU ARE planning on setting up your own video studio using the NewTek Toaster, make sure the equipment you purchase is Toaster-compatible.

Acording to NewTek, a prime consideration for a Toaster-compatible camera is that it feature a sync input. Some reasonably priced camcorders tested by the company include:

Sony CCD-G1 ($750)
JVC TK-880U(L) ($1240)
Panasonic WV-D5100 ($1500)

There seems to be a trend among video-gear manufacturers to add built-in time-base correctors (TBCs) to their equipment, which could be good news for Toaster users. Here are a few examples:

Sony CCD-V5000 Hi-Band 8 Camcorder ($2700)
Hitachi VL-S100 Portable S-VHS Recorder ($3990)

Keep in mind that not all systems with built-in TBCs will work. If in doubt, contact NewTek and ask about the specific model you are considering.

If you need a transport controller for single-frame recording of animations, make sure it's Amiga-compatible. The following companies manufacture such equipment:

BCD Associates
7510 North Broadway Ext.
Suite 205
Oklahoma City, OK 73116
405/843-4574

Videomedia
211 Weddell Dr.
Sunnyvale, CA 94089
408/745-1700

Lyon Lamb
4531 Empire Ave.
Burbank, CA 91505
818/843-4851

There are quite a few sources for time-base correctors. The following companies all offer TBCs, with most of them supplying a wide range of models varying considerably in terms of features and price:

ALTA Group
535 Race St.
Suite 230
San Jose, CA 95126
408/297-2582

FOR-A Corp.
Nonantum Office Park
320 Nevada St.
Newton, MA 02160
617-244-3223

Hotronic
1875 So. Winchester Blvd.
Campbell, CA 95008
408/378-3883

I.DEN Videotronics Corp.
9620 Chesapeake Dr.
Suite 204
San Diego, CA 92123
619/492-9239
800/874-IDEN

NOVA Systems
50 Albany Turnpike
Canton, CT 06019
203/693-0238

Prime Image
1995 Las Plumas
San Jose, CA 95133
408/867-6519 ■

—LW


Applied Engineering
Timemaster 500
RamWorks 500
Applied Engineering
RamWorks 2000
Applied Engineering

The Studio Builder's

REFERENCE GUIDE



Looking for video equipment but can't sort out all those black boxes?

Our roundup of hardware charts the differences.

AS MUCH AS you might wish, the Amiga cannot fill all your desktop-video needs. Sure, your Amiga is great for producing titles, splashy special effects, stereo audio, and animation, but it cannot shoot your video or record a finished tape. To help you decide what equipment you need at the other end of the video cable, I assembled the following buyer's guide.

Although inexpensive by professional standards, industrial VCRs, cameras, still video, laser discs, switchers, and editing controllers are priced way beyond the means of even the most resourceful videophile, so I have limited my coverage to high-end consumer equipment. Regrettably, I do not have enough space to include important, but secondary, items such as audio-mixing consoles, lights, software, and Amiga-specific add-ons (genlocks).

Pick and choose freely among the suggested units, but above all remember: Trite as it sounds, you get what you pay for. Among other things, this means avoiding the purchase of features you do not need. You will probably be able to add them later, when you need them, and for less money. ►

By Gene Brawn

AMIGA ILLUSTRATION BY LOU BEACH

You deserve the best!

√ Its handling of graphics is unsurpassed: Pen Pal is the only program I tested that will automatically wrap text around graphics... ***AmigaWorld*** *July* 1990.

√ Number 1 best seller Productivity Software. ***Amiga Insider*** *- From The Top - March, April, May, June, July, August 1990*

√ Five Stars! The best of the lot by a huge margin... Intuitive and easy to use... Fast enough that speed isn't even a consideration. ***Info*** *Jan/Feb 1990*

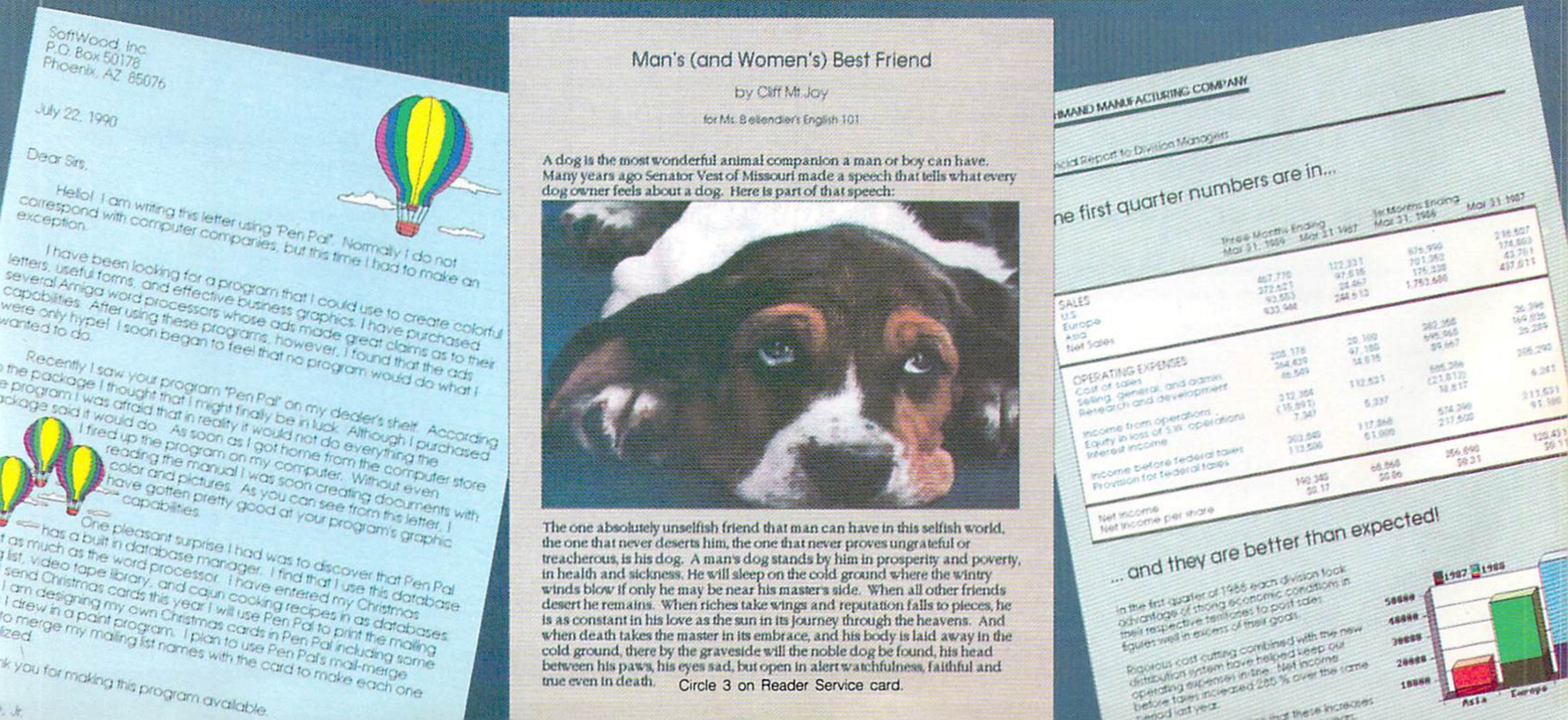
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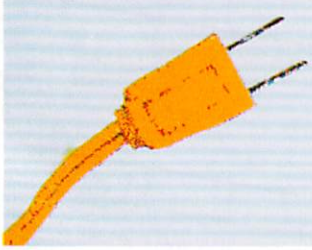
Camcorders

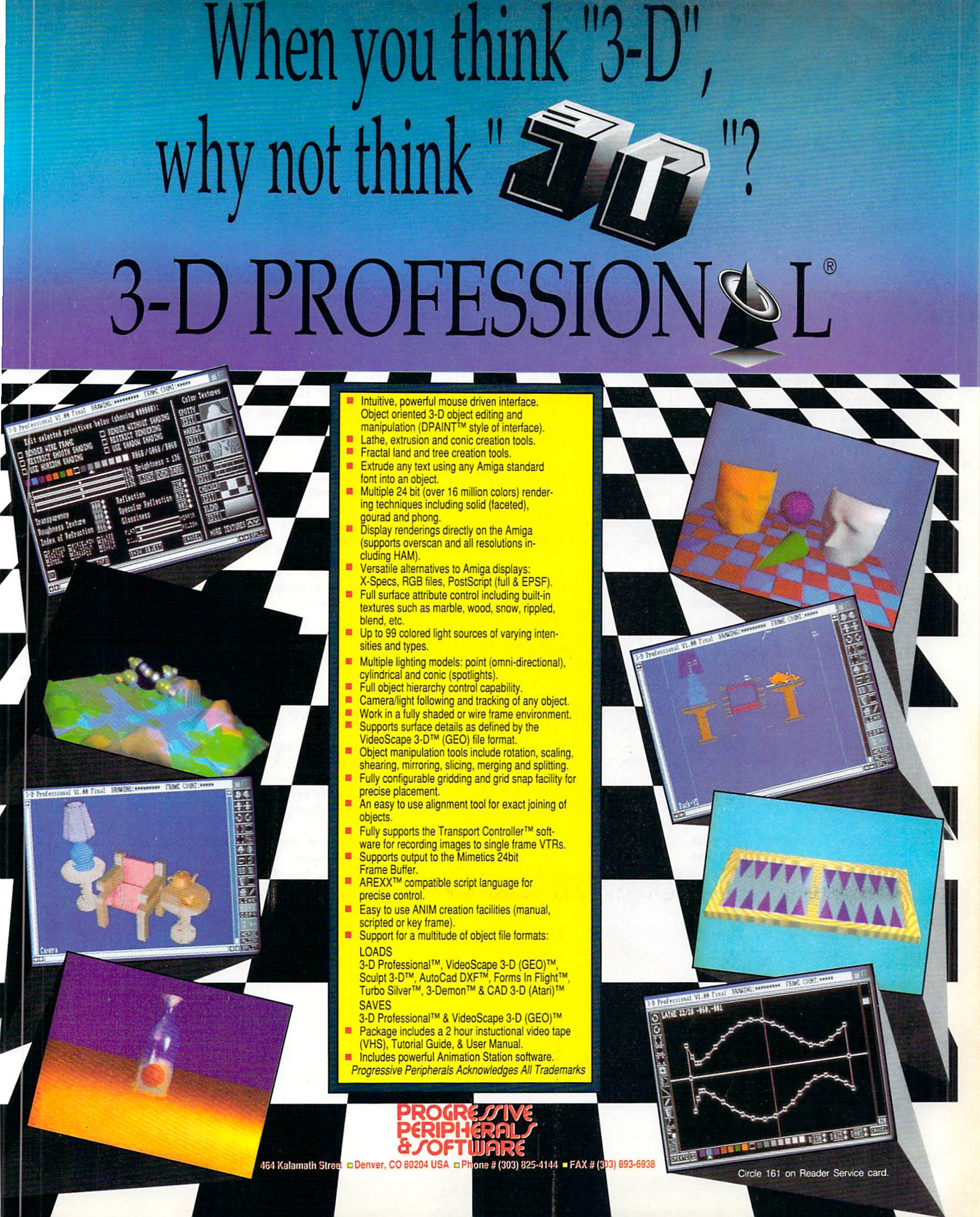
Obviously, the master videotaped image is the most important element of the desktop-video production. Because creating the finished tape involves copying your original footage (four generations is not unusual) and picture quality degrades with each new copy, you must start with the best image possible. Put your pennies into the picture, and be sure to try before you buy. Quality is hard to evaluate from spec sheets; trust your eyes instead.

At long last, manufacturers are moving away from useless bells and whistles and toward truly helpful features. Electronic image stabilizers attempt to minimize hand-held camera shake. Digital zoom, if you don't push it too far, can effectively extend your camera's optical reach, although you will eventually see the pixels. A blur-reducing digital focal shutter comes in handy for taping high-speed events. Save yourself controller costs by choosing a unit with a synchro-editing feature, which turns your edit deck into an edit controller for your playback deck, allowing you to do assemble edits. Although titling may seem superfluous because of readily available Amiga titling software, it is useful as an electronic slate to identify your scenes at the shooting site.

Mfr	Model	Price	Format	Features											Comments
				FEH	INSERT	EFX	LUX	ZOOM	LENS	TITLE	SHUTTER	STEREO	LBS	SYNCHRO	
Canon	A1 Mark II	2299.00	Hi8 1/2″	*			4	10	1.4	*	*	*	3.3	*	
	H800	1745.00	Hi8 1/2″	*			5	8	1.7	*	*	*	2.6	*	"Fuzzy logic" control of iris/focus
	E06	1549.00	8MM 1/2″	*			4	6	1.8	*	*	*	2.1		
Fisher	FVC-880	1199.95	8MM 1/2″	*			4	6	1.8	*	*		1.7		"Fuzzy logic" control of iris/focus
Hitachi	VM-S8100A	2199.95	SVHS 2/3″	*			5	8	1.2	*			6.0		
	VM-5200A	1399.95	VHS 2/3″	*			7	8	1.2	*			6.0	*	
JVC	GF-S550U	2299.00	SVHS 1/2″	*			7	8	1.4	*	*		6.0	*	
Olympus	VX-407	1295.00	VHS 1/2″	*	*		3	8	1.4	*			4.2	*	Titling optional ($349)
Panasonic	PV-660	1599.00	VHS 1/3″	*		*	5	12	1.6	*			5.4	*	Electronic image stabilization, digital zoom
	PV-40	1299.00	VHS-C 1/2″	*	*		5	8	1.8	*	*		1.7		Electronic image stabilization, digital zoom
Panasonic Industrial	AG-460	3500.00	SVHS 1/2″	*	*		1	10	1.2	*	*		5.8	*	Two image chips: Y (luminance) and C (chrominance)
Pentax	PV-C78A	1449.00	VHS 1/2″	*			7	8	1.4	*			7.0		
Quasar	VM706	1269.95	VHS 1/2″	*		*	1	12	1.6	*	*		4.4	*	Digital zoom
Sony	CCD-V99	2200.00	Hi8 2/3″	*	*		4	8	1.6	*	*	*	4.0		
	CCD-TR7	1400.00	8MM 1/2″	*			4	8	1.6	*	*		1.7		
	CCD-V5000	2700.00	Hi8 2/3″	*	*	*	2	8	1.4		*	*	6.6	*	Built-in TBC, superimposer, digital noise filter, digital zoom
Toshiba	SK-3D7	2850.00	VHS-C 1/2″				15	6	1.6				4.0		3-D video with LCD shutter glasses

Legend: FEH–flying erase head, INSERT–insert editing, EFX–digital effects, LUX–minimum light level, ZOOM–zoom ratio, LENS–lens speed, TITLE–digital titling, SHUTTER–digital focal shutter, STEREO–audio stereo capability, LBS–weight, SYNCHRO–synchro editing




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Support for a multitude of object file formats:
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3-D Professional™, VideoScape 3-D (GEO)™, Sculpt 3-D™, AutoCad DXF™, Forms In Flight™, Turbo Silver™, 3-Demon™ & CAD 3-D (Atari)™
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VCRs

Judging by this category's size, you might think every consumer-electronics company makes at least one VCR. You would be wrong; VCRs are produced at only a handful of factories, so buying according to brand name may only lead to paying more than need be. (See the sidebar "Primary Manufacturers" for more details.)

To ensure the best video quality, choose an SVHS or Hi-8 format deck. (For a further discussion of tape formats, see "Cutting the Red Tape," p. 43, *AmigaWorld* 1990 Video & Animation Special Issue.) Insist on flying erase heads for glitch-free edits. If you want to do MTV-style videos, get a deck that can record video over audio, so you can synchronize video cuts to the music. Some of the newer decks even include inexpensive, eight-bit time-base correctors that enable you to fade between two VCRs. Also, a unit with a jog wheel makes single-frame digitizing of live video a snap.

Mfr	Model	Price	Format	Features								Comments
				FEH	SFA	JOG	V DUB	D BUF	SEDIT	INSRT	TBC	
Hitachi	VT-F430A	799.95	VHS	*	*	*	*		*			5 heads
	VT-S730A	1099.95	SVHS	*	*	*	*		*			5 heads, A/V input
Instant Replay	77 IT5S	1995.00	SVHS									NTSC/PAL record, mix VHS & SVHS
JVC	HR-S5500U	1299.00	SVHS	*		*			*	*		
	HR-S10000U	3000.00	SVHS	*	*	*	*	*	*	*	*	Digital zoom, Dolby, built-in 8-event edit controller
	BR-9000U	2900.00	VHS	*	*	*						Single-frame recorder, genlock
Mitsubishi	HS-U62	999.00	SVHS		*	*	*					
	HS-U82	1699.00	SVHS		*	*	*	*				Remote edit port
Panasonic	PV-4024	399.00	VHS	*	*		*	*	*			
	PV-4070	729.00	VHS	*	*	*	*	*	*			Jog also on remote
	PV-S4990	1599.00	SVHS	*	*	*	*	*	*		*	Digital zoom
Panasonic Industrial	AG-1960	1495.00	SVHS	*	*	*			*	*		Color correction, interval record, remote edit port
	AG-1730	680.00	VHS	*	*	*			*			
Philips	VR6995	1799.00	SVHS	*	*	*	*	*				
RCA	VR700HF	699.00	SVHS									Low-cost SVHS
Sony	EV-S900	2000.00	Hi-8	*	*	*	*		*	*		S-video in/out, jog/shuttle on remote, EFX
	EDV-7500	1950.00	EDBETA	*	*	*	*		*	*		S-video in/out, EFX
Sony Professional	EVO-720	4950.00	8 mm	*	*	*	*	*		*		2 deck edit system, controller, titler included, time code read/write
Toshiba	SV-F990	2199.95–2295.95	SVHS	*	*	*	*	*		*		Digital noise reduction, digital EFX (wipe, fade, superimpose)

Legend: FEH–flying erase head, SFA–single-frame advance, JOG–jog shuttle dial, V DUB–audio/video dubbing, D BUF–digital video buffer, SEDIT–synchro editing, INSRT–insert editing, TBC–time-base corrector



Video Cameras

A stand-alone video camera may seem an anachronism in the age of camcorders, but there is no substitute for a good copystand and camera. You can't scan everything! A stand-alone camera is also an excellent sync source for your system. As with camcorders, trust your eyes, not the spec sheet. All these units feature removable lenses and, coupled with a larger tube or CCD (charged coupled device), usually produce a superior picture. More than any other category, cameras follow the you-get-what-you-pay-for rule.

Mfr	Model	Price	Features								Comments
			B/W	COLOR	CCD	TUBE	RES	CMNT	SHUT	P/U SZ	
JVC	TK860U	1400.00		*	*		330	*		2/3	NTSC/RGB
Panasonic Industrial	WV-BL200	525.00	*				420	*		1/2	
	WV-CL110	850.00		*			330			1/2	
	WV-D5100	1500.00		*	*		460		*	2/3	S-video
	WV-1410	300.00	*			*	600	*		2/3	
	WV-1500X	415.00	*			*	650	*		2/3	
	WV-140	240.00	*			*	500	*		1/2	
Pulnix	TMC-514	1295.00		*			510	*	*	1/2	RGB, S-video outputs

Legend: B/W–black-and-white camera, RES–resolution, CMNT–C-mount lens bracket, SHUT–shutter, P/U SZ–pick-up size

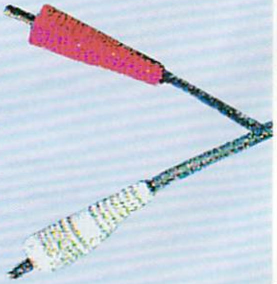
Primary Manufacturers

MANY VCRS AND camcorders share so many designs and features that they seem like clones. For good reason, too; they *are* identical machines! This is more than a matter of fashion and fads in design. A small number of manufacturers produce all the VCRs and camcorders sold around the world. This fact should affect your purchase decisions, for identical models sold under different brands can vary widely in price. Use the "Equipment Clones" chart when you suspect that there is more than one version of the unit you plan to buy. Carefully compare features; some manufacturers do include special functions to set their models apart from the clones. Minolta and Pentax, for example, have good reputations for their 35mm cameras and might include custom optics on their otherwise identical camcorders. □ ***—GOB***

Equipment Clones

Manufacturer	Brands/Format
Canon	Canon/8mm; Sunpak/8mm
Goldstar	Goldstar/VHS
Hitachi	Hitachi/VHS; Minolta/VHS,8mm; Mitsubishi/VHS; Pentax/VHS,8mm; Realistic/VHS; RCA/VHS; Sears/VHS
JVC	JVC/VHS; Zenith/VHS
Matsushita	Chinon/VHS; Curtis Mathes/VHS; General Electric/VHS; Instant Replay/VHS; Magnavox/VHS; Nikon/8mm; Olympus/VHS,8mm; Panasonic/VHS; Philips/VHS; Quasar/VHS; Sylvania/VHS; Teknika/VHS
Sanyo	Fisher/8mm; Sanyo/8mm
Sharp	Sharp/VHS
Sony	Kyocera/8mm; Nikon/8mm; Ricoh/8mm; Sony/8mm
Tamron	Tamron/8mm
Toshiba	Toshiba/8mm

Source—*Videomaker*, January 1990

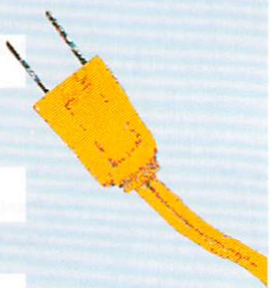


Video Switchers/Special Effects Generators (SEGs)

These beasts are headed for extinction, at least as soon as the Video Toaster (NewTek, $1595) and its clones start shipping in quantity. Until then (unless you have 12 very long arms), a video mixer is essential. It puts special effects, fades, dissolves, audio mixing, and edit control on a single console. Although most of these low-cost units do not have anywhere near the power of professional production switchers, they still can make your hours in the studio much easier. For example, even though the Amiga can emulate wipes and fades with software, it is usually much faster to use a switcher for the job—such are the realities of production.

Mfr	Model	Price	Features						Comments
			EDIT	EFX	D BUF	AUDIO	TITLE	SVID	
Ambico	V-0300	425.00		*					Black burst
JVC	JX-SV55	700.00	*	*		*	*		
Numark	VAM-2000	2990.00		*	*	*			Dual TBC
Panasonic	WJ-MX10	2400.00		*	*	*			
	WJ-MX12	3000.00	*	*	*	*	*	*	
Sansui	AV-99	750.00		*		*			
Showline	4AB1	299.95	*	*		*			
Vidicraft	300S	379.00	*	*		*		*	
	PSW-800	529.00						*	Matrix switcher w/RS-232 port
Vivanco	4044	1335.00	*	*		*			

Legend: EDIT–control edit VCRs, EFX–special effects, D BUF–digital buffer, AUDIO–audio mixing, TITLE–built-in titler, SVID–S-video inputs/outputs

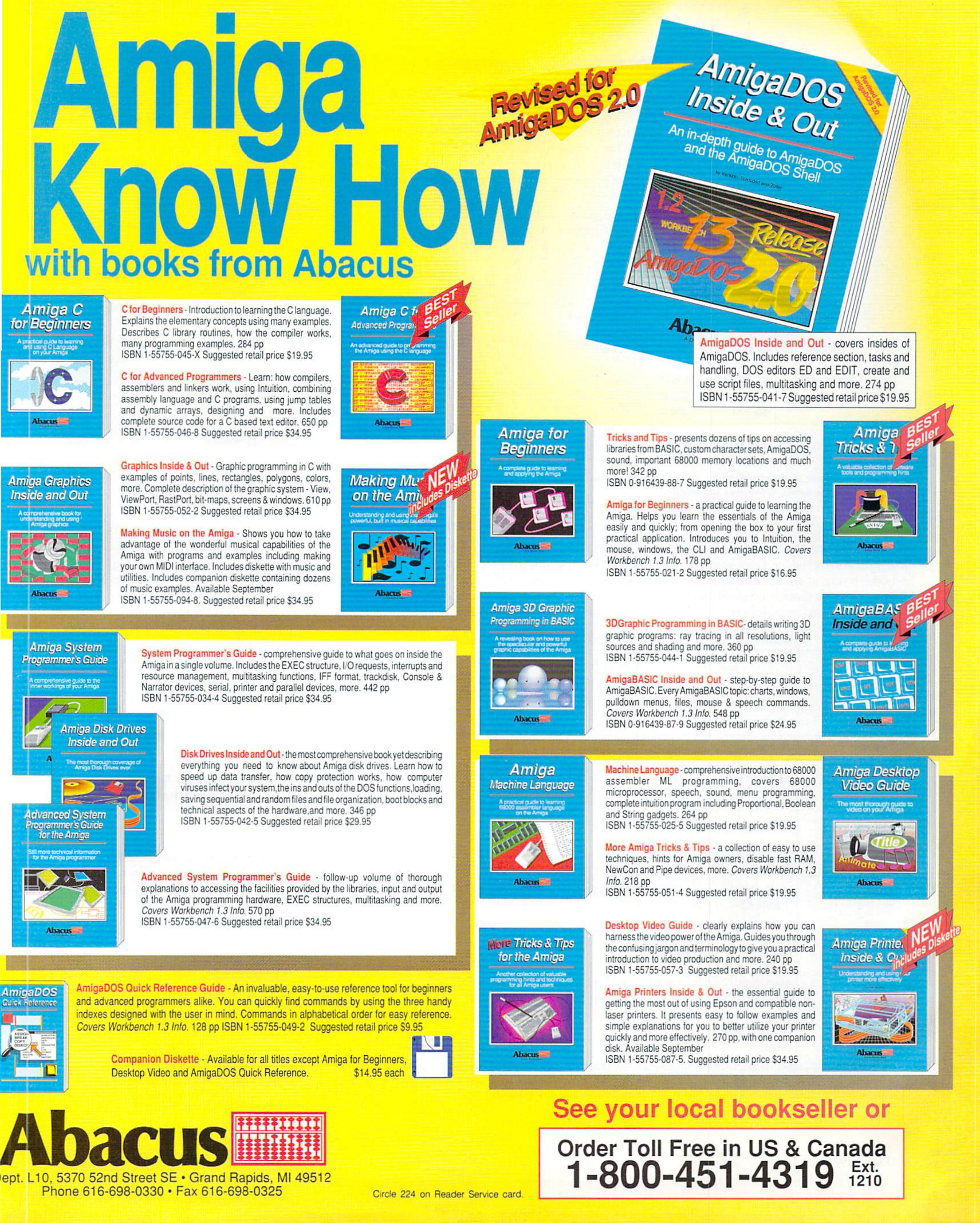


Laser-Disc Players

Ideal for the fast-paced world of desktop-video production, laser-disc players offer outstanding picture quality and quick access to any part of the program. Add to this the ability to play audio compact discs, and you have a good, all-around production tool. The only bar to greater system integration is the current lack of computer-compatible remote-control ports in the consumer models. All units include infrared remote.

Mfr	Model	Price	Features													
			RMT	CD	CDV	TRACK	CHAP	3 in	5 in	8 in	NOISE	SVID	PLAY 2	JOG	DVE	TBC
Panasonic	LX-1000	1400.00		*	*	*	*	*	*	*	*		*	*	*	*
Pioneer	CLD-91	2000.00		*	*	*	*	*	*	*	*	*	*	*		*
	LD-870	500.00					*			*	*					
	LD-V6000A	1995.00	*				*			*	*					
	LD-V4200	1095.00	*				*			*	*					
	LD-V2200	895.00	*				*			*						
Sharp	MV-D100	1500.00		*	*	*	*	*	*	*	*	*				
Sony Professional	LD-P1450	995.00	*				*			*						
	LD-P1550	1598.00	*				*			*						
Yamaha	CDV-1600	899.00		*	*	*	*	*	*	*	*					*

Legend: RMT–RS-232 or parallel computer port, CD–compact disc, CDV–CD-video, TRACK–audio track search, CHAP–laser disc chapter search, 3/5/8 in–plays 3,5,8 inch discs, NOISE–noise reduction circuit, SVID–S-video output, PLAY2–plays both sides of disc, JOG–jog shuttle, DVE–built-in digital video effects, TBC–built-in time-base corrector



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Still-Video Systems

Still video is ideally suited to the needs of the desktop producer. If you need only static shots of your subject, would you rather carry a small, light still-video camera or lug a bulky camcorder? The picture quality is as good as still frames from standard VHS or 8mm videotape, even though these units use two-inch floppy disks instead of videotape. Because the output is NTSC, the equipment integrates easily with your other video gear. Look for camera quality to improve dramatically in the near future with the addition of higher-resolution CCDs and full-frame recording modes. (Current consumer models record only one of the two fields that make up a video frame.)

Mfr	Model	Price	Features										Comments
			CCD SIZE	RES	REC	PLAY	ERASE	FIELD	FRAME	HI B	NORM	FPS	
Canon	RC-250	799.00	1/2	300	*	*	*	*		*		3	Also called the Xapshot
Hitachi	VX-52A	1495.00	R,P	350	*	*	*	*			*	4	
Panasonic	AG-ES10	1590.00	1/2	400	*		*	*	*	*	*	15	Camera only
	AG-ES100	825.00	P	500		*	*	*	*	*	*	15	S-video input, external sync
	AG-800	1200.00	R,P	350	*	*	*	*	*		*	1	S-video input
Sony	MCV A10	849.95	1/2	350	*		*	*		*	*	10	Also called the Mavica
	MAP-T2	279.95	C	350		*	*	*		*		6	

Legend: R–recorder, P–player, C–controller, RES–output resolution, REC–record, FIELD–field record, FRAME–frame record, HI B–hi band, NORM–normal mode format, FPS–frames per second

Edit Controllers

An edit controller is the cornerstone of the low-cost production studio. While it won't produce fancy effects, an editor will save you hours of fiddling trying to synchronize your edit and playback decks. There are so few programs that turn your Amiga into an edit controller. Until more arrive, you should consider resorting to a dedicated unit.

Before buying, be aware of a few limitations: Be sure the controller works with your VCRs. For example, you can't use the Sony controller with a Panasonic industrial deck. Most of these low-cost units control the tape by emulating the remote control, so they are not very accurate. Edit precision ranges from a few frames to two or three seconds.

Mfr	Model	Price	VCR Control					Features							Comments
			RMOTE	L	FIVE	PRO	IR	DECKS	INSRT	EDIT	SVID	PREVW	EFX	EVENT	
Azden	VE-100	449.95					R			1		A		99	
Future Video	EC-1000PRO+	695.00	2	2	2			2	*			A		9	RS-232 connect to Amiga, EDLP software available
Hama	Video Cut 10	1290.95	P	P			R	1		*		S		100	
Interactive Microsystems	Mediaphile 1.3	195.00					2	2	*	*	*	S	*	1000+	Amiga-specific controller, software available separately
	Mediaphile 2.0M,S,P	295.00	2	2	2	2		2	*	*	*	S	*	1000+	Various Amiga-specific, deck-dependent modules, software sold separately
Panasonic	AG-A95	440.00				2			*	*		A		8	
Sony	RM-E100V	195.00	P	R				2				A		8	
	RM-E300	750.00	R	R				2			*	A	*	8	
Videonics	DirectED Plus	599.95					R	1		*		A		100	
	ProED	1600.00			P			2	*	*		A	*	100	

Legend: RMOTE–plug-in remote, L–L-type edit connect, FIVE–5-pin edit connect, PRO–industrial/broadcast edit connector, IR–infrared edit controller, (R–works with recorder, P–works with player, 2–works with both), DECKS–controlled decks, INSRT–insert edits, EDIT–comprehensive script editing, SVID–S-video, PREVW–preview function (A–all/entire edit list, S–segment), EFX–digital effects, EVENT–maximum edit points in memory



The art of driving.

Introducing the ultimate driving machine, the AE HD (high density) Drive, Applied Engineering's new high density 3.5 drive (above, at right). The first and only high density drive for the Amiga, it runs circles around the competition. The FCC certified design supports both standard 880K and 1.52 MEG 3.5″ disks. The new AE standard device controls both the high density mode and built-in electronic disk ejection. For running the new Amiga UNIX, the AE standard 1.52 MEG format is a virtual must.

1.52 MEG capacity means you can stop playing diskette roulette. Simply store your large 2-disk application programs on one, high density disk and forget about fumbling for "sets" of disks. And storing files just became twice as easy too, because you'll only need half the number of disks.

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For driving on a budget, we've designed a quick, quiet 880K standard 3.5" drive as well (above, at left). Incorporating a reliably quiet and trouble-free design, the AE 880K Drive™ sports a tough aluminum case, custom molded cable and an on/off disable switch.

Both drives are compatible with all Amiga computers and feature complete daisy-chain capacity (from AE to another drive or vice-versa), MS-DOS compatibility, pass through connectors, FCC certified designs and full one-year warranties.

AE High Density 3.5 Drive........ $239
AE 880K Drive.................. $119

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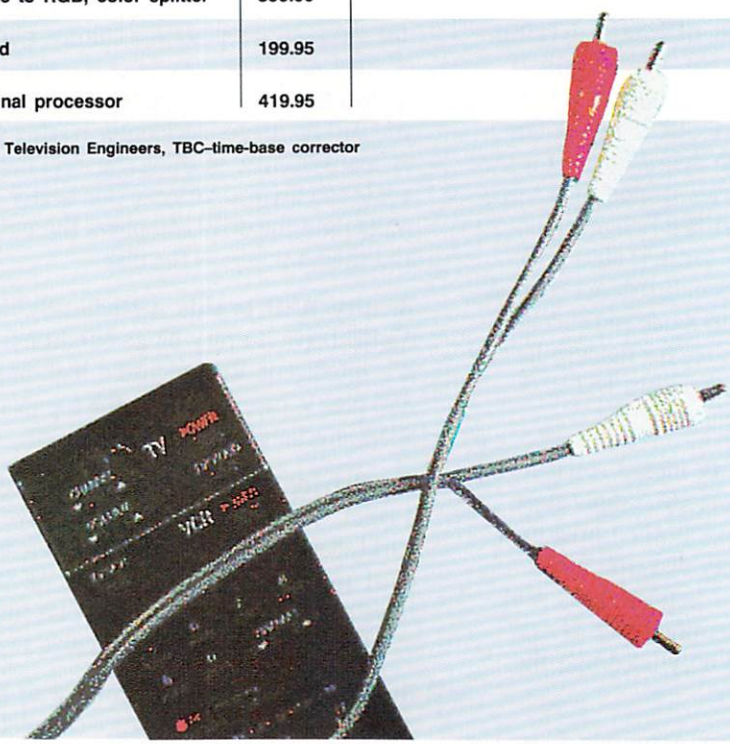
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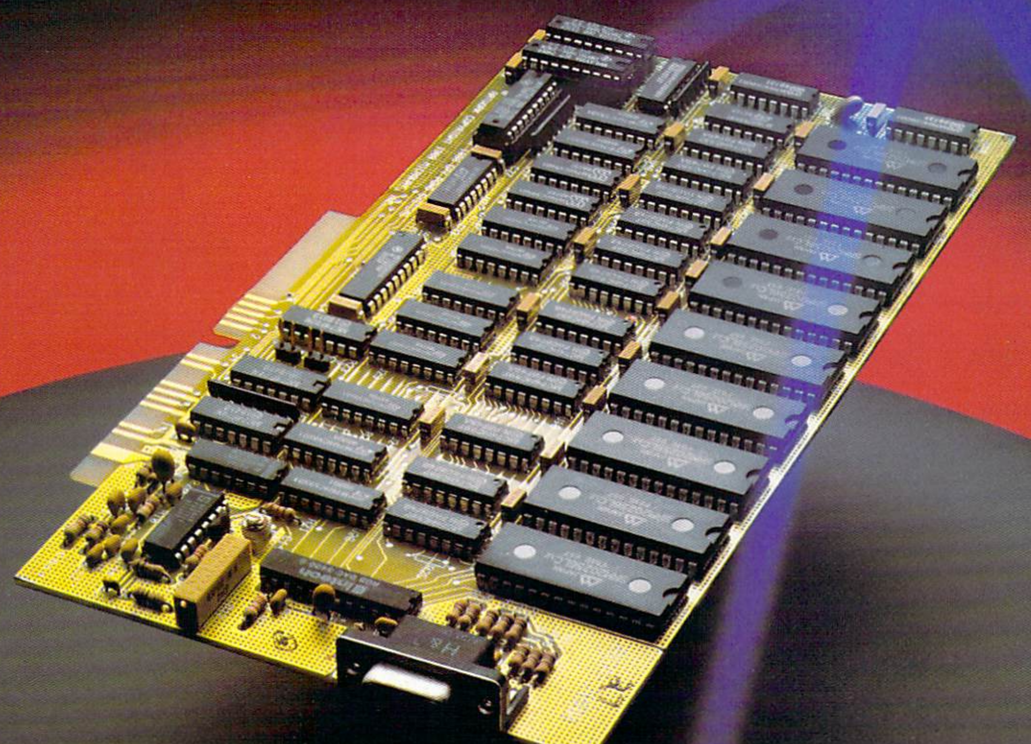
This is a real grab-bag of stuff that all serious video producers should consider for their studios. Color correctors, such as the Panasonic PV-CC50, can restore a scene to its correct colors or make fantasy from reality. The Tamron Fotovix is designed to digitize and transfer slides and filmstrip images to video. Although some new VCRs include built-in time-base correctors, most studios need a heavy-duty unit to make their signals synchronous. A transcoder is useful when you need to convert your video images to other formats, RGB to NTSC, for example.

Mfr	Model	Description	Price	Comments
Comprehensive	CS 30L	Copystand	389.00	
Cinema Products	Steadicam Jr.	Camera stabilizer	595.00	Cameras up to 4 lbs.
Horita	WG-50	SMPTE time code window dub inserter	289.00	
	TRG-50	SMPTE time code reader/writer	489.00	High speed
Hotronic	AE61S	TBC	3000.00	S-video
MicroIllusions	TCRG-102	SMPTE time code reader/writer	799.95	Compatible with MicroIllusions EDLP software
Midwest Communications	DPS 270	TBC	2990.00	S-video
Nova	710S	TBC compatible with Panasonic SVHS VCRs	3490.00	
Panasonic	PV-CC50	Color corrector	399.00	Color bars, character generator, VHS, adjust tint, sharpness, intensity, and white balance
	UPT-2	Transcoder	1950.00	
Sony	XV-C700	Color corrector, EFX	700.00	A/V fades, stereo
Tamron	Fotovix II-X	Integrated video system for copying 35MM transparencies	1899.00	Zoom, NTSC output
TDA	Pro-Res	Composite to RGB, color splitter	399.00	
Testrite	CS 3	Copystand	199.95	
Vidicraft	Detailer IV	Video signal processor	419.95	

Legend: NA–not available, SMPTE–Society of Motion Picture and Television Engineers, TBC–time-base corrector



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Portable TV/VCRs

After expending prodigious amounts of time and energy to create your video masterpiece, you are ready to show it off, but your potential client doesn't have a VCR in his office or in her booth at the trade show. What do you do? If you have had the forethought to get one of these nifty portables, you just reach into your pocket, pull out the tiny box, pop in the tape, and make your pitch. ■

Mfr	Model	Price	Format	Features								
				SCRN SIZE	LCD	CRT	BLITE	TUNER	AV	AC/DC	BAT	LBS
Casio	VF-7000	1299.00	VHS	4.0	*			*	*	*	*	7.7
Hitachi	VT-LC50A	1699.00	VHS	5.0	*			*	*	*	*	7.5
Panasonic	PV-M429	1299.00	VHS	4.0	*				*	*	*	
Sharp	VC-V540UP	1895.00	VHS	4.0	*				*	*	*	30
Sony	GV-200	1200.00	8mm	4.0	*		*	*	*	*	*	2.6
Emerson	VCT120	829.95	VHS	10		*		*	*	*		39

Legend: SCRN SIZE–diagonal screen measure, LCD/CRT–screen type, BLITE–backlight, AV–audio/video in/out, BAT–battery, LBS–weight

Gene Brawn is an interactive multimedia producer. He would like to thank Audio-Video Supply, of San Diego, CA, for supplying equipment and advice for this article. Write to him c/o AmigaWorld *Editorial Dept., 80 Elm St., Peterborough, NH 03458.*

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Canon USA Inc.
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Casio
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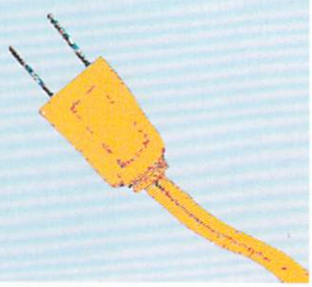
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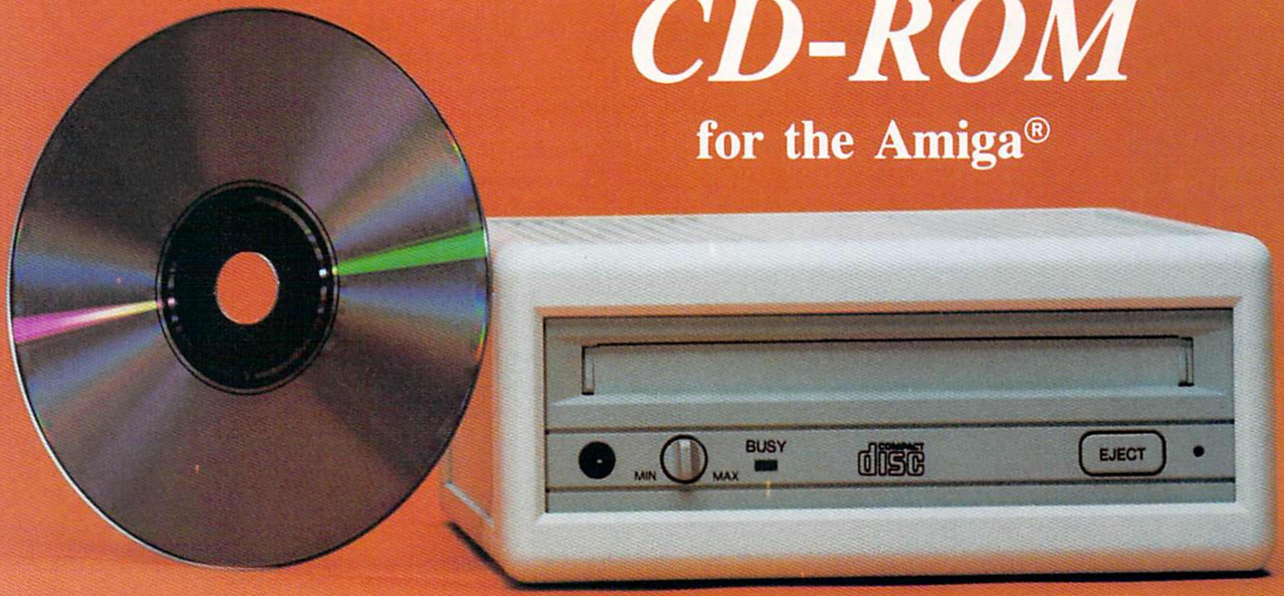
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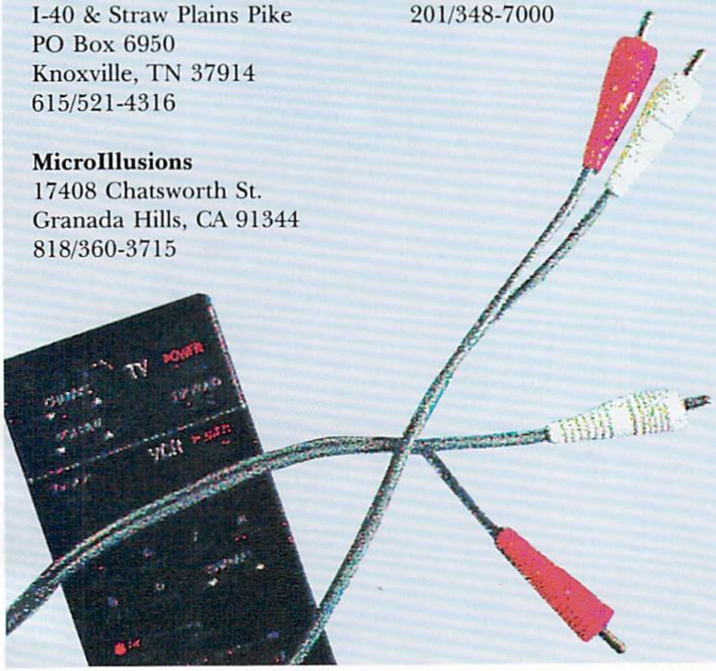
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BEST RETURN ON INVESTMENT

Videotaping Services

In 1987, Virgil Miller was injured while performing his duties as senior deputy sheriff in Bakersfield, California. He was referred to a vocational rehabilitation counselor to help him get started in a new line of work. Miller had been videotaping weddings and school activities for friends as a paying hobby, so his counselor suggested learning video production. The training would have taken at least 14 months—that was too long.

Then they discovered Video Data Services, a videotaping service that, for $13,950, provided its franchisees with all the training, equipment, and marketing assistance needed to start a video photography and tape-transfer business specializing in weddings, product demonstrations, sales demonstrations, legal depositions, conventions, and computer graphics. After researching the company thoroughly, the counselor recommended that the county buy the franchise for Miller as part of his compensation.

Video Data Services offered Miller an opportunity to enter a field with explosive growth. Videotaping and transfer services commonly gross six figures a year and Video Data Services claims that anyone following its procedures full-time should be able to reach that income level within two years. "It's all up to you," says Miller. "If you follow the program, you should be able to do it. This is my second year, and it is already a fantastic one. **I should reach the $100,000 mark by the fourth quarter of 1989.**

"I started this business full-time from day one," says Miller. "I like to tell my law-enforcement friends that I work only half days now that I'm my own boss. They turn green until I explain what I mean—8 a.m. to 8 p.m.." However, long hours are not a requirement, according to Miller. "A lot of affiliates start part-time until they feel secure. The company is great about that. They hold your hand every step of the way, teaching you marketing methods and giving you promotional materials." There are several specialized areas to go into, and Video Data Services teaches you to approach target markets one at a time until you know each one well. For instance, you might start by taping weddings. The company will provide you with tapes to run in a booth at bridal shows. They'll also give you a letter to send to couples whose engagement is announced in the newspaper.

Miller's approach is not as structured. "I never turn down a job, even if I know that I can't do it or don't have the equipment. I'd rather accept the job and then subcontract to someone else. That way the customer keeps coming back to me."

Miller has both consumer and commercial accounts. "I tape everything short of commercial TV: legal depositions, real-estate property, sports, graduations, even a video yearbook. I also do a lot of industrial work, like training tapes. For sales promotions, I'll videotape a company's products for the salesman to show customers on the road."

The graphics capabilities of his Amiga make it easy to put titles and credits on tape. "With the Amiga, I can digitize the image of a business logo into the computer, enhance it, clean it up, and put it right on the videotape. Most businesses are impressed with the product, and their satisfaction gets me more customers. Actually, I usually get three new customers from every job I do, just from word of mouth. It has been easy to turn a very good profit." Other new business comes from the franchisor, through direct-mail marketing, and the yellow pages.

Kern County helped Virgil Miller retrain for a new livelihood. For an investment of $13,950, the county certainly got its money's worth. **Article Reprinted From The June 1989 Issue Of "Home Office Computing."**

SNAPSHOT

Virgil Miller

FRANCHISE: Video Memories—local franchise name of Video Data Services, a national videotaping service

RESIDENCE: Bakersfield, California

INITIAL INVESTMENT: $13,950 in 1987

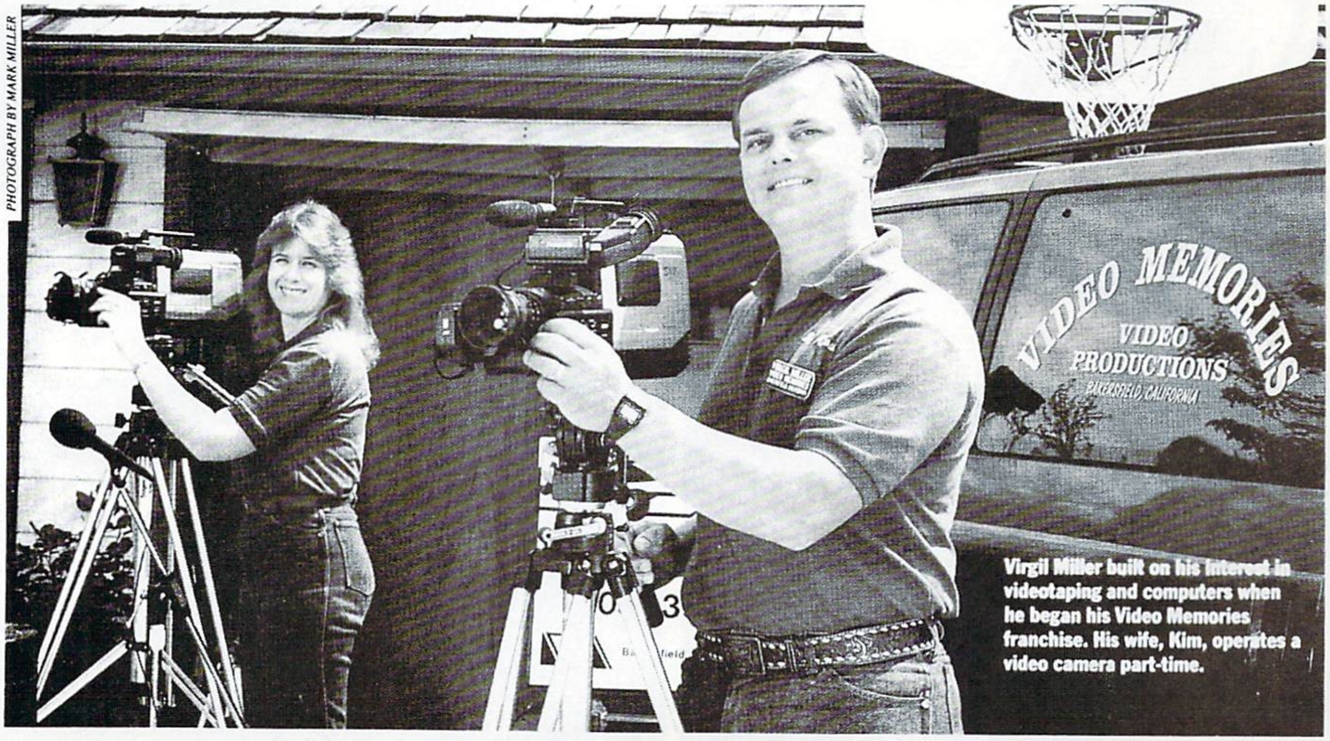
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PHOTOGRAPH BY MARK MILLER

Virgil Miller built on his interest in videotaping and computers when he began his Video Memories franchise. His wife, Kim, operates a video camera part-time.



All photographs are of actual DCTV screens.



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- GVP 030/882/80AT HD ... 1795.00
- GVP A3501-4/NO HD 33MHZ ... 2195.00
- GVP A3501-4/40AT 33MHZ ... 2519.00
- GVP A3501-4/80AT 33MHZ ... 2879.00
- HURRICANE H500 ACCEL. ... 299.00
- MEGA MIDGET RACER ... 699.00
- MIDGET RACER ... 339.00

AUDIO HARDWARE

- AMAS MIDI SAMP./A1000 ... 124.00
- AMAS MIDI SAMPLER ... 124.00
- CHEETAH KEYBOARD ... 199.00
- CMI MIDI 1 (EXT) ... 56.95
- DELUXE MIDI A500/2000 ... 63.95
- ECE MIDI 1000 ... 49.95
- ECE MIDI 500/2000 ... 49.95
- FUTURE SOUND 500 ... 93.95
- FUTURE SOUND A1000 ... 129.95
- MIDI GOLD 500 ... 64.95
- MIDI GOLD INSIDER ... 54.95
- PERFECTSOUND 500/2000 ... 69.95
- PRO SOUND DESIGNER ... 119.95
- SOUNDSCAPE MIDI PACK ... 279.95
- SPIRIT DELUXE MIDI ... 235.00
- SPIRIT MIDI-STAR ... 139.00
- STEREO SPEAKERS ... 33.95

FLOPPY DRIVES

- A2000 DRIVE REPLACMNT ... 99.95
- AMIG-A-TOSH ... 169.00
- CA-880 FLOPPY DRIVE ... 119.00
- CSI 2200 ... 99.00
- CSI 3100 SILENT DRIVE ... 129.00
- CSI 3200 SILENT DRIVE ... 139.00
- CUTTING EDGE MAC DRIV ... 194.00
- GVP FD 2010 IMPACT ... 95.00
- POWER DRIVE PC880 ... 139.00
- SUB SYSTEMS A500 FDD ... 149.00
- SUPRADRIVE FLOPPY ... 99.95
- TWIN DRIVES ... 199.00
- UNIDRIVE ... 99.00
- UNIDRIVE ENHANCED ... 129.00

HARD DRIVES AND CONTROLLERS

- ADVANTAGE 2000 SCSI ... 145.00
- CSI 6100 AUTOBOOT CRD ... 99.95
- ESCORT 3.5HD CASE ... 125.00
- ESCORT 48MB HDD A500 ... 399.00
- FLASH CARD ... 99.95
- GVP SYQUEST 44MB HDD ... 699.00
- GVP SYQUEST CARTRIDGE ... 90.00
- GVP WT-150 TAPE DRIVE ... 639.00
- GVP XC CASE W/SYQUEST ... 878.00
- GVP XC CASE W/WT-150 ... 818.00
- GVP XC CASE/NO DRIVE ... 179.00
- HARD DRIVE CASE ... 149.00
- INFINIT40S EXT REMOVABLE 1049.00
- INFINIT40/INT. REMOVABLE 999.00
- INFINIT40 DISK CARTRIDGE ... 90.00
- MICROB HARDFRAME DMA HC229.00
- MOUNTING BRACKET, HDD ... 19.00
- QUANTUM 105MB HRD DRV ... 629.00
- QUANTUM 170MB SCSI HD ... 999.00
- QUANTUM 40AT DRIVE ... 389.00
- QUANTUM 40MB HARD DRV ... 349.00
- QUANTUM 80AT DRIVE ... 699.00
- QUANTUM 80MB HARD DRV ... 589.00
- RODIME 40MB HD ST506 ... 299.00
- SEAGATE 20MB HD ... 249.00
- SEAGATE 30MB HD ... 289.00
- SEAGATE 46MB HD ... 309.00
- SONY CART FOR WT 150 ... 24.95
- SUPRA 44R EXT W/SCSI ... 979.00
- SUPRA 44R EXT/NO SCSI ... 809.00
- SUPRA 44R INT W/SCSI ... 809.00
- SUPRA 500XP SCSI 0MB ... 229.00
- SUPRA A500 SCSI BOARD ... 149.00
- SUPRA DRIVE 20MB 1000 ... 599.00
- SUPRA DRIVE 30MB 1000 ... 689.00
- SUPRA DRIVE 30MB A500 ... 539.00
- SUPRA WORD SYNC SCSI ... 109.00
- SUPRADRIVE 105MB A500 ... 919.00
- SUPRADRIVE 20MB W/2MB ... 769.00
- SUPRADRIVE 40MB 1000 ... 729.00
- SUPRADRIVE 40MB A500 ... 609.00
- SUPRADRIVE 40MB W/2MB ... 889.00
- SUPRADRIVE 45MB A500 ... 699.00
- SUPRADRIVE 500XP 20MB ... 579.00
- SUPRADRIVE 500XP 40MB ... 689.00
- SUPRADRIVE 80MB A500 ... 819.00
- SUPRADRIVE A1000 SCSI ... 185.00
- SUPRA WORDSYNC 40Q ... 455.00
- SUPRA WORDSYNC 80Q ... 665.00
- SUPRA WORDSYNC 105Q ... 704.00
- TINY TIGER 40MB-Q ... 579.00
- TINY TIGER 80MB-Q ... 849.00
- TRUMP CARD SCSI A2000 ... 127.00
- TRUMPCARD A2000 PROF. ... 209.00
- TRUMP CARD SCSI A500 ... 219.00
- TRUMPCARD A500 PROF. ... 279.00
- VAULT 30MB HARD DRIVE ... 399.00
- VAULT 40MB HARD DRIVE ... 499.00
- VAULT 65MB HARD DRIVE ... 599.00

MEMORY EXPANSION

- A501 BULK PACKAGE ... 134.00
- ADRAM 2080 0/8 MB BRD ... 145.00
- ADRAM 505 INT 512K ... 59.95
- ADRAM 520 0/2 MEG EXP ... 98.95
- ADRAM 540 0/4 MEG INT ... 125.00
- ADRAM 560D 2MB FOR A540 .. 259.00
- ASDG 0/8MB RAM CARD ... 299.00
- BASEBOARD A500 0/4 MB ... 129.00
- EXP-1000/1MB FOR A500 ... 199.00
- EXP-512 A500 INTERNAL ... 90.00
- EXP-8000+ A500 2 MEG ... 479.00
- MEGABOARD A2000 ... 130.00
- MICROB 8UP M.BRD SIMM ... 174.95
- MICROB A500 512K RAM ... 119.95
- MICROB. 4X POP SIMM ... 74.50
- MICROB. 8UP DIPP 2MB ... 349.00
- MICROB. 8UP DIPP W/OK ... 174.95
- MINI MAX 4 0/4 MB RAM ... 129.00
- MINI MAX 4 1/4 MB RAM ... 199.00
- MINI MAX 4 2/4 MB RAM ... 289.00
- MINI MAX 4 4/4 MB RAM ... 449.00
- MINIMEGS A1000 2MB ... 299.00
- MINIMEGS A500 2MB ... 269.00
- SPIRIT SC501 A500 ... 79.00
- STARBOARD 2 A1000 0K ... 199.00
- STARBOARD 2 A1000 1MB ... 289.00
- STARBOARD 2 A500 512K ... 299.00
- STARBOARD 2 UPPR DECK ... 39.95
- SUPRARAM 2000 0MB RAM ... 119.00
- SUPRARAM 2000 2MB RAM ... 238.00
- SUPRARAM 2000 4MB RAM ... 358.00
- SUPRARAM 2000 6MB RAM ... 468.00
- SUPRARAM 2000 8MB RAM ... 588.00
- SUPRARAM 500 1/2 MEG ... 64.95
- SUPRARAM A500 2MB RAM ... 239.00
- TRUMPCARD META 4/0 ... 159.00
- TRUMPCARD META 500 4/0 ... 249.00

MISC. HARDWARE

- A MAX EMULATOR ... 118.00
- A-MAX PACKAGE ... 399.00
- AMERISTAR ETHERNET ... 799.00
- AMI-NET ETHERNET SYS. ... 995.00
- AMIGA PACK'S YAMAHA ... 49.95
- AMINET 500 ETHERNET ... 499.00
- AVATEX EFAX-88 ... 699.00
- BOING OPTICAL MOUSE ... 91.95
- CMI MULTIPORT BOARD ... 195.00
- DUAL SERIAL BOARD ... 189.00
- FAST FAX ... 549.00
- FATTER AG SWITCH A500 ... 21.95
- FATTER AGNUS SWITCH'R ... 21.95
- GVP 68030 HD AUTOBOOT ... 119.00
- INTERACT A500 ... 224.00
- INTRUDER ALERT ... 119.95
- MAC EPROMS 128K ... 139.00
- PRINTERFACE ... 79.95
- SOFT PANEL ... 106.95
- STARBOARD 2 MF MODULE ... 77.95
- SUPER CARD AMIGA ... 71.95
- SUPER CARD AMIGA 2000 ... 71.95
- TOOLBUS A1000 ... 215.00
- TOOLBUS A500 ... 215.00

MODEMS

- BAUD BANDIT MODEM ... 105.00
- BAUD BANDIT MODEM L5 ... 169.00
- COURIER HST DUAL STANDRD 1059.00
- COURIER HST 9600 ... 614.00
- STAR 2400 BAUD MODEM ... 92.95
- SUPRA 2400 BAUD MODEM ... 99.95
- SUPRA 2400 INT. MODEM ... 119.00

MONITORS

- MITSUBISHI 1381A ... 699.00
- MONITERM VIKING 1 ... 1545.00
- NEC MULTISYNC 3D ... 699.00
- SEIKO CM-1440 MULTISYNC ... 649.00
- PANASONIC MULTISYNC ... 599.00

PRINTERS

- CITIZEN GSX-140 ... 349.00
- CITIZEN GX-200 ... 224.00
- DESKJET PLUS PRINTER ... 749.00
- LASERJET IIP PRINTER ... 1095.00
- NEC LC SILENT WRITER ... 3495.00
- PAINTJET COLOR PRINTER ... 999.00
- STAR NX-2410 PRINTER ... 339.00
- STAR NX1000 II PRINTR ... 169.00
- STAR NX1000 RAINBOW ... 199.00

RAM CHIPS

- RAM 1MB X 1 -100 ... 12.00
- RAM 1MB X 1 -70 ... 20.00
- RAM 1MB X 1 -80 DIPP ... 16.00
- RAM 1MB X 1/120 DIPP ... 12.00
- RAM 1MB X 4 80NS ZIPP ... 70.00
- RAM 1MB X 4/80NS DIPP ... 70.00
- RAM 1MB X 8 -12 SIMM ... 84.00
- RAM 1MB X 8 -80 SIMM ... 195.00
- RAM 256K X 4 ZIPP ... 20.00
- RAM 256K X 4/1 MEG ... 79.95
- RAM 256K X 4/2 MEG ... 149.00
- RAM 256K X 4/4 MEG ... 290.00
- RAM 256K X 4/512K ... 38.95
- RAM 256K X 4/80 DIPP ... 13.00
- RAM 256K X 8 -12 SIMM ... 54.00
- GVP 030 4MB MEM CHIPS ... 599.00

VIDEO HARDWARE

- AMIGA VIDEO TERMINAL ... 314.95
- AMIGEN GENLOCK ... 97.95
- CANON SCANNER IX-12 ... 995.00
- COLOR SPLITTER ... 119.00
- DIGI VIEW GOLD V4.0 ... 129.00
- DIGIVIEW GOLD 4.0 PAL ... 134.00
- EASYL 1000 TABLET ... 359.00
- EASYL 2000 TABLET ... 389.00
- EASYL 500 TABLET ... 329.00
- FLICK. FIX TO GENLOCK ... 37.95
- FLICKER FIXER ... 378.00
- FRAMEGRABBER ... 569.00
- FRAMEGRABBER PAL VERS .. 589.00
- FRAMEGRABBER/256 GRAY .. 629.00
- FRAMEGRABBER/256G PAL ... 639.00
- LENS 16MM NO IRIS ... 18.95
- LENS 16MM W/IRIS ... 53.95
- LIVE! 1000 ... 249.00
- LIVE! 2000 ... 368.00
- MAGNI 4004 GENLOCK/CONT 1495.00
- MINIGEN GENLOCK ... 179.00
- MINIGEN PAL GENLOCK ... 189.00
- NERIKI GENLOCK ... 1495.00
- NERIKI DESKTOP ... 899.00
- PANASONIC WV1410 ... 189.00
- PANASONIC WV1500X ... 319.00
- PERFECT VISION - ALL ... 199.00
- PROGEN GENLOCK ... 369.00
- SHARP JX100 SCANNER ... 758.00
- SUPERGEN 2000S ... 1449.00
- SUPERGEN GENLOCK ... 649.00
- TCRG 102 TIME CODE R/G ... 719.00
- VI 2000 RF VIDEO INTF ... 59.95
- VI 2000 VIDEO INTER. ... 57.95
- VIDI AMIGA FRAMEGRABR ... 164.00
- VIDTECH SCANLOCK ... 789.00
- VIDTECH SCANLOCK PAL ... 1099.00

INPUT HARDWARE

- APRODRAW 12X12 ... 464.95
- APRODRAW 12X12 W/CUR. ... 499.00
- APRODRAW CURSOR ... 49.95
- HAND SCANNER/TOUCH UP ... 359.00
- ECE MIDI PLUS ... 49.95
- SHARP JX300 SCANNER ... 3595.00
- SHARP JX450 SCANNER ... 4995.00
- VIP VIDEO INTERFACE ... 97.95

ACCESSORIES
CABLES

- CABLE A2000 FLOPPY DR ... 29.95
- CABLE A2000 KEYBRD EX ... 29.95
- CABLE A500 IMAGE 1 ... 19.00
- CABLE A500 IMAGE 2 ... 19.00
- CABLE A500 NULL 25' ... 29.95
- CABLE A500 NULL 8' ... 19.00
- CABLE A500 PARAL. 15' ... 24.95
- CABLE A500 PARAL. 25' ... 29.95
- CABLE A500 PARAL. 6' ... 12.95
- CABLE A500 PARAL. 8' ... 18.95
- CABLE A500/2000 MODEM ... 12.95
- CABLE A500 SWITCH 10F ... 16.95
- CABLE A500 SWITCH 6FT ... 14.95
- CABLE AMIGA SONY 1302 ... 19.00
- CABLE AMIGA TO IIGS ... 46.00
- CABLE AMIGA TO KV1311 ... 29.95
- CABLE AMIGA TO MITSUB ... 29.95
- CABLE AMIGA TO NEC 2 ... 24.95
- CABLE AMIGA TO NEC-3D ... 30.00
- CABLE AMIGEN 1084/S ... 19.95
- CABLE CAMERA BNC RCA ... 14.95
- CABLE EXT SCSI 6' ... 22.95
- CABLE FLICK FIX NEC 2 ... 19.95
- CABLE FLICK FX NEC 2A ... 24.95
- CABLE FLICK FX NEC 3D ... 22.95
- CABLE FLICK SONY 1302 ... 19.95
- CABLE SCSI 3 CONNECT ... 16.95
- CABLE SCSI RIBBON 2' ... 16.95
- CABLE SCSI RIBBON 3FT ... 19.95
- CABLE ST-506 HDD SET ... 12.00
- CABLE TRUMP/SCSI 2000 ... 19.95
- CABLE TRUMP/SCSI 500 ... 19.95
- CABLE VGA TO 1302 6FT ... 29.95
- GENDER CHNGR DB25 M/M ... 9.95
- GENDR CHNG A500-A1000 ... 20.95
- SMART CABLE 817 ... 49.95

DISKETTES/DISK ACCESSORIES

- ALLSOP DISKFILE/30 ... 7.95
- ALLSOP DISKFILE/80 ... 10.95
- ALLSOP LOCKABLE 30 ... 9.95
- ALLSOP LOCKABLE 80 ... 12.95
- BANX DISKETTE BOX ... 14.95
- CLEANING KIT LARGE ... 12.95
- CLEANING KIT SMALL ... 5.95
- CLEANING KIT SUNCOM ... 5.95
- DISKETTES, 50 PACK ... 44.00
- EASYL DISK FOLDER ... 14.95
- FAST RACK DISK HOLDER ... 3.49
- FLOPPY WALLET ... 7.95
- KALIMAR TEAK 60 DISK ... 22.95
- MICRO 50 ... 8.95
- SONY COLOR DISKETTES ... 13.95
- SONY DSDD DISK 10 PACK ... 12.95
- SONY DSHD DISK 10 PACK ... 19.95
- SONY DSDD DISK 15 PACK ... 19.95
- SONY DSHD DISK 5 PACK ... 9.95
- TEAK-TECH 120 ... 32.95
- TEAK-TECH 60 ... 25.95

DUST COVERS

- DESKJET DUST COVER ... 28.95
- DUST COVER A1000 &MON ... 13.95
- DUST COVER A2000 &MON ... 11.95
- DUST COVER A500 CPU ... 8.95
- DUST COVER MONITOR ... 11.95
- DUST COVER SM PRINTER ... 8.95
- KEYBOARD SKIN A1000 ... 21.95
- KEYBOARD SKIN A500 ... 17.95
- LASERJET DUST COVER ... 24.95
- PAINTJET DUST COVER ... 15.95
- SAFESKIN / A1000 ... 17.95
- SAFESKIN / A2000 ... 17.95
- SAFESKIN / A3000 ... 19.95
- SAFESKIN / A500 ... 17.95

INPUT DEVICES

- BOSS JOYSTICK ... 14.95
- CORDLESS MOUSE, THE ... 92.00
- DUAL GUN ADAPTER ... 25.95
- DUAL JOYSTICK ADAPTOR ... 10.95
- EPYX 200XJ JOYSTICK ... 11.95
- EPYX 500XJ JOYSTICK ... 10.95
- ERGO STICK ... 17.95
- FOUR PLAYER ADAPTER ... 12.00
- FREEDOM CONNECTION ... 25.95
- GRAVIS CLEAR JOYSTICK ... 35.95
- GRAVIS MOUSESTICK ... 89.95
- GRAVIS SWITCH JOYSTCK ... 32.49
- INTERACTIVE CABLE ... 12.95
- KEYBOARD IBM/AMIGA ... 64.95
- LIGHT GUN, PHASAR ... 32.49
- MOUSE MASTER ... 29.95
- MOUSE MATS ... 6.95
- MOUSE WASH ... 6.95
- MY T MOUSE ... 59.95
- NAVIGATOR JOYSTICK ... 17.95
- PERFECT SOUND ADAPTOR ... 10.95
- POWERPLAYERS JOYSTICK ... 20.95
- QUICKJOY III SUPRCHRG ... 12.95
- QUICKJOY JET FIGHTER ... 17.95
- QUICKJOY V SUPERBOARD ... 22.95
- QUICKSHOT 2 JOYSTICK ... 12.95
- QUICKSHOT II PLUS ... 12.95
- SLIK STIK JOYSTICK ... 7.95
- SPEED KING JOYSTICK ... 13.95
- STAR CURSOR JOYSTICK ... 35.95
- STIK-GRIPPER ... 12.95
- TAC-2 JOYSTICK ... 10.95
- TRACKBALL, AMTRAC ... 64.95
- ULTIMATE SUPERSTICK ... 38.95
- WICO 3-WAY JOYSTICK ... 22.95
- WICO BAT HANDLE STICK ... 18.95
- WICO RED BALL JSTICK ... 18.95
- WINNER JOYSTICK ... 14.95

POWER DEVICES

- CURTIS DIAMOND ... 33.95
- CURTIS EMERALD ... 39.95
- CURTIS PHONE SURGE ... 12.95
- G.E. SURGE PROTECTOR ... 24.95
- MICROLINE MW738 ... 99.95
- POWER PROTEC W/REMOTE ... 27.95
- POWER SUPPLY HD150 ... 129.95
- POWER SUPPLY, IVS ... 89.95
- POWER SUPPLY, SUNTRON ... 89.95

PRINTER ACCESSORIES

- POWER SUPERVISOR ... 32.95
- PRINTER STAND ... 20.95
- PRINTER STAND 132 COL ... 49.95
- STAR NX-1000 RIBBON ... 3.95
- STAR NX-2400 RIBBON ... 7.49
- STAR NX2410 RIBBON ... 7.49
- STAR RAINBOW RIBBON ... 8.95

MISC. ACCESSORIES

- A1000 KEYBOARD ADAPTR ... 19.95
- AUTO DROID ... 50.95
- COMPUTER CLEANER ... 5.95
- COMPUTER SERVICE KIT ... 18.95
- COPY/CAMERA STAND ... 59.95
- DATA TRANSFER SWITCH ... 45.95
- DIGI DROID ... 67.95
- ERASE-A-LABEL ... 6.95
- FLICKER MASTER ... 12.95
- GAME PLAY COMPACT DSK ... 11.49
- GENDER BENDER, DIGI V ... 20.95
- MONITOR STAND & DRAWR ... 59.95
- POWER BASE ... 39.95
- POWER PROTECTOR PLUS ... 14.95
- SURGE GUARD ... 51.95
- SURGE MASTER ... 18.95

NEW ACCESSORIES

- ECMAC TOWER ... 259.00
- COVER UPS A1950 MON ... 6.95
- COVER UPS A3000 CPU ... 5.95
- COVER UPS A3000/A1950 ... 10.95

GRAPHICS
ANIMATION

- AEGIS ANIMATOR ... 19.95
- AMIGA WORLD ANIM DISK ... 14.95
- ANIMAGIC ... 61.95
- ANIMATE 3D ... 79.95
- ANIMATION FLIPPER ... 29.95
- ANIMATION STATION ... 59.95
- ANIMATOR'S APPRENTICE ... 189.95
- ANIMATORS EDITOR ... 38.95
- ANIMATORS EFFECTS ... 29.95
- ANIMATORS MULTIPLANE ... 52.95
- ANIMATORS STAND ... 29.95
- ANIMOTION ... 62.95
- DELUXE PRODUCTIONS ... 139.00
- DIGIMATE III ... 23.95
- FANTAVISION ... 38.95
- FORMS IN FLIGHT II ... 27.95
- LIGHT BOX ... 118.95
- LIGHTS CAMERA ACTION ... 29.95
- MOVIE SETTER ... 64.95
- PAGE FLIPPER PLUS F/X ... 87.95
- PHOTON CELL ANIMATOR ... 49.95
- SCULPT ANIMATE 4-D ... 349.00
- SCULPT ANIMATE 4-D JR ... 89.00
- TALKING ANIMATOR, THE ... 42.95
- TURBO SILVER 3.0 ... 74.95
- VIDEOSCAPE 3D ... 129.95

CLIPART

- AIRCRAFT PICS ... 31.95
- AIRSHIPS/20TH SCULPT ... 23.95
- AIRSHIPS/20TH TSILVER ... 23.95
- ART COMPANION ... 19.95
- ART GALLERY 1 & 2 ... 19.95
- ART GALLERY FANTASY ... 23.95
- CHRISTMAS PICS ... 21.95
- CITYDESK COMPANION ... 19.95
- CLIP ART #1-8 EACH ... 12.95
- COMICSETTER FUNNYDATA ... 20.95
- COMICSETTER HERO DATA ... 20.95
- COMICSETTER SF DATA ... 21.95
- DELUXE MAPS ... 16.95
- DES DISK, ARCHTEC ... 22.95
- DES DISK, FUTURE ... 22.95
- DES DISK, HUMAN ... 22.95
- DES DISK, INTER ... 22.95
- DES DISK, MICROB ... 22.95
- ECLIPS PROFESSIONAL ... 60.95
- FONTS AND BORDERS ... 22.95
- GALLERY 3-D ... 51.95
- PHOTON PAINT EXP. DSK ... 19.95
- PROF. PAGE STRUCTURED ... 38.95
- STARSHIPS 2050 SCULPT ... 29.95
- STARSHIPS 2050 TSILV ... 29.95
- SUPER CLIPS 1 ... 18.95
- SUPER CLIPS 2 ... 18.95
- VIDEO VISIONS 1 ... 12.95
- VIDEO VISIONS 2 ... 12.95

DRAW/CAD

- AEGIS DRAW 1.4 ... 51.95
- AEGIS DRAW 2000 ... 164.95
- C LIGHT ... 38.95
- CAD PARTS 4 INTROCAD ... 16.95
- FLO FLOORPLAN CNSTRCT ... 29.95
- FLOOR PLAN LIB. AEGIS ... 58.95
- FLOOR PLAN LIB. IFF ... 38.95
- FOUNDATION/FRAME LIB. ... 58.95
- HOME BUILDERS CAD ... 124.00
- HOMEBUILDERS SCULPT ... 69.95
- HOMEBUILDERS CHOICE ... 50.95
- HOMEBUILDERS LIB 1 ... 26.95
- HOMEBUILDERS PRINT ... 72.95
- INT. DESIGN LIB AEGIS ... 58.95
- INT. DESIGN LIB. IFF ... 38.95
- INTROCAD ... 46.95
- INTROCAD PLUS ... 88.95
- PROFESSIONAL DRAW ... 129.00
- ULTRA DESIGN ... 239.00
- XCAD DESIGNER ... 87.95
- XCAD PROFESSIONAL ... 304.00
- XSHELL ... 124.95

FONTS

- ALOHA FONTS 1 ... 11.95
- ALOHA FONTS 3 ... 19.95
- ASHAS CALLIGRA FONTS ... 29.95
- FANCY 3D FONTS ... 46.95
- FANCY 3D FONTS SILVER ... 46.95
- GOLD DISK FONT SET #1 ... 21.95
- INTERFONTS ... 69.95
- JET SET FONT SET ... 32.49
- KARA ANIMFONTS 1 ... 26.95
- KARA ANIMFONTS 2 ... 26.95
- KARA FONTS HEADLINES ... 41.95
- KARA FONTS HEADLINES2 ... 36.95
- KARA FONTS SUBHEADS ... 36.95
- LINE FONTS 1-8 EACH ... 20.95
- LION'S CALLIGRA FONTS ... 25.95
- MAP PICS - WORLD ... 37.95
- MASTERFONTS 3D VOL 1 ... 24.95
- MASTERPIECE FONTS ... 159.95
- NEWSLETTER FONTS COLR ... 29.95
- PAGESTREAM FONTS A-C EA. . 25.95
- P/STREAM FONTS #1-19 EA. ... 25.95
- PIC-MAGIC PACKAGE ONE ... 58.95
- PRO FONTS VOL I ... 22.95
- PRO FONTS VOL II ... 22.95
- PRO VIDEO + FONTS 1-4 EA. 84.95
- PROF. FONT LIBRARY ... 48.95
- PROF. PAGE OUTLINE CG ... 129.95
- PROF. PAGE TEMPLATES ... 38.95
- SEX FONTS I ... 18.95
- STORYBOOK CAPITALS ... 29.95
- STUDIO FONTS V1 ... 12.95
- TATE FONTS ... 45.95

HOT GRAPHICS/ VIDEO/TITLING

- 3D OPTIONS ... 32.49
- ACAD TRANSLATOR ... 139.95
- ANALYTIC ART ... 36.95
- ANIMATION ROTOSCOPE ... 46.95
- ART DEPARTMENT ... 52.95
- AUTOSCRIPT ... 81.95
- BGRAPHICS ... 114.00
- BROADCAST TITLER ... 174.00
- BUTCHER 2.0 ... 25.95
- CHOROMAP ... 32.95
- CREDIT TEXT SCROLLER ... 23.95
- DELUXE VID III/PHOTO ... 99.95
- DELUXE VIDEO III ... 99.95
- DIGI VIEW GOLD 3.0PAL ... 145.00
- DIGIWORKS 3D ... 84.95
- DIRECTOR, THE ... 41.95
- DIRECTORS TOOLKIT ... 23.95
- DOUG'S MATH AQUARIUM ... 49.95
- DOUGS COLOR COMMANDER . 19.95
- FOCUS VIDEO ... 119.95
- FOR ART'S SAKE ... 12.95
- FRAMEGRABBER V2 SFTWR ... 58.95
- GRAPHICS STARTER KIT ... 64.95
- HOMETOWN USA ... 25.95
- ICON MAGIC ... 49.95
- ICONLAB 1.3 ... 21.95
- IMAGE LINK ... 179.00
- INTERACTOR ... 61.95
- INTERCHANGE ... 29.95
- INTERCHANGE TSLV MODL ... 18.95
- INVISION PLUS ... 193.00
- MOVIECLIPS GENERAL 1 ... 22.95
- PERFORMER (ELAN) ... 34.95
- PHOTON TRANSPORT CONT .. 195.95
- PHOTON VIDEO EDLP ... 349.95
- PRO VIDEO GOLD ... 179.00
- PRO VIDEO PLUS PAL ... 199.95
- PRO VIDEO POST ... 209.00
- RESEP ... 37.95
- SCENE GENERATOR ... 29.95
- SUPER BUNDLE/DIGIPNT3 ... 449.00
- SUPER BUNDLE/DIGIVIEW ... 399.00
- SUPER PROMPT ... 349.00
- TALESPIN ... 28.95
- TERRAIN FOR TURBOSILV ... 17.95
- TITLE PAGE ... 117.95
- TV GRAPHICS ... 29.95
- TV*SHOW ... 58.95
- TV*TEXT PROFESSIONAL ... 99.95
- VIDEO EFFECTS 3D ... 119.00
- VIDEO PAGE ... 93.95
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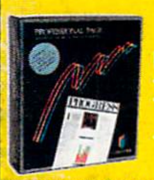
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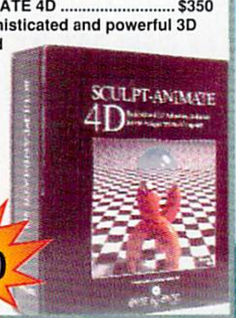
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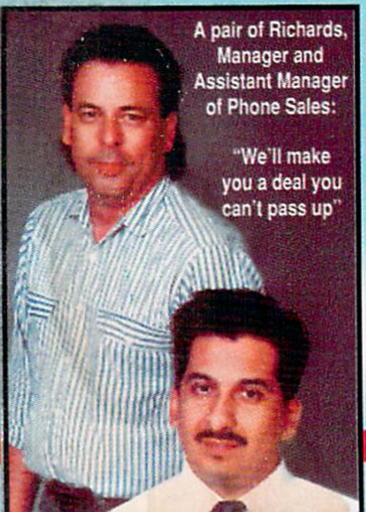
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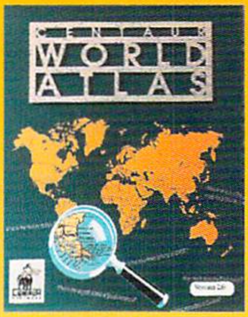
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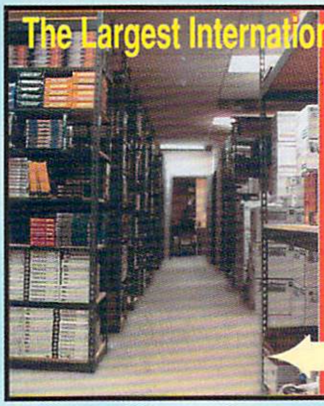


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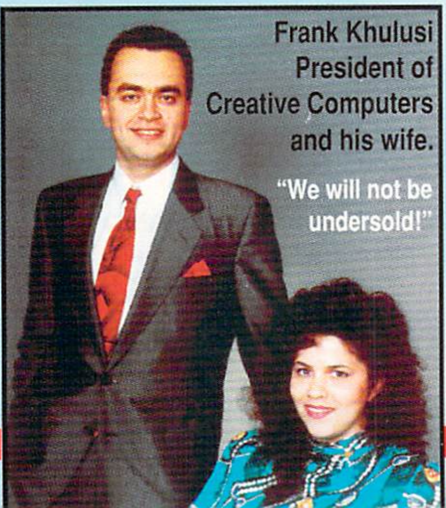
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The *AW* 2.0 Road Atlas

Get your operator's license right here and start motoring down Route 2.0 with this hands-on guide to the all-new Workbench.

TRYING TO NAVIGATE the new Workbench 2.0 without help is like attempting to find your way alone along unfamiliar roads in a new place. Sure, there are signs and other motorist aids common to all routes, but unless you have a map to tell you where you are going and how to get there, you will probably take several wrong turns on the way.

Users of previous versions of Workbench will certainly recognize familiar components in V2.0, but somehow everything will still seem new and different. The truth is, yes, things are *very* different. Perhaps the shock comes from the fact that Workbench is the part of the Amiga that has changed least in the five years since Version 1.0. It is as if somebody has been saving up all of the changes in appearance, power, and convenience in order to spring them on us all at once. Maybe that's why Commodore chose the designation 2.0, instead of 1.4 as originally planned.

In any event, let's open our road map and see if we can get from A to Z on Route 2.0 without mishap.

This Is One Scenic Highway!

Your first boot will convince you that things have changed dramatically with 2.0. The Workbench screen (see Figure 1) has been dressed up in the graphics equivalent of a three-piece suit to give it a more professional appearance. New colors have been carefully selected to give the screen a 3-D "embossed" look, in which unselected buttons appear to be raised while selected buttons appear to be pressed in. Each icon is displayed on its own raised box, which both adds to the 3-D effect and makes the icons more visible on a black-and-white monitor.

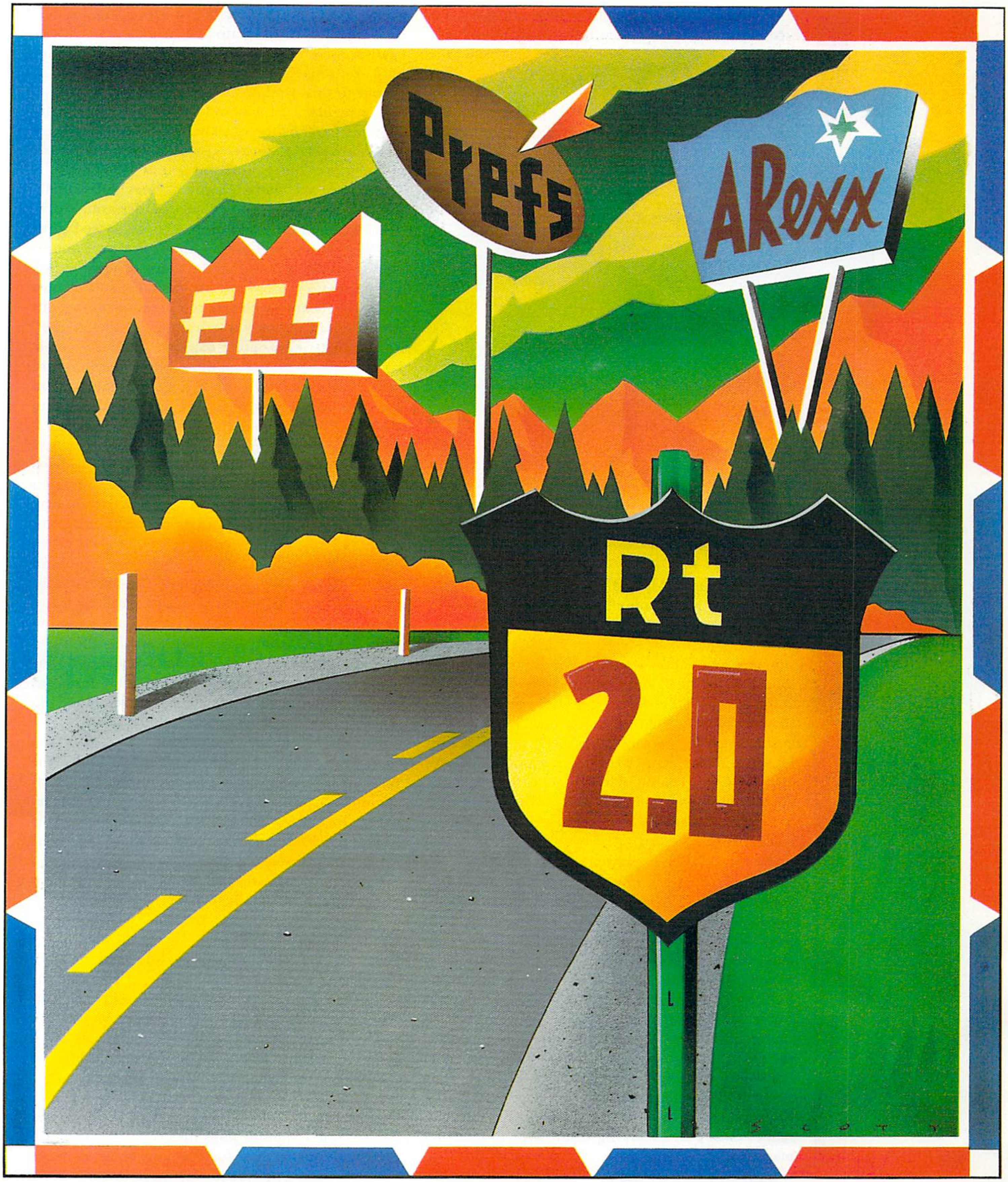
The 2.0 Workbench window is now the real thing, with borders having appropriate gadgetry. This means you can size and depth-arrange it just like any other window, making it easy to get to your disk icons when the screen is filled with other windows.

The new-look window gadgets function identically to the old ones, except for the pair in the upper-right corner. Now, a single button on the far right replaces the old pair of front/back gadgets, making depth-arrangement a lot less confusing. The same button now moves the hidden window forward when you want it and sends it back when you decide that you are finished.

The zoom gadget—to the left of the depth gadget—is a new addition. When pressed, it instantly shrinks the Workbench window down to its minimum size. Press it again, and the window returns to full size. What the zoom gadget really does is toggle the window size and position between its current state and an alternate one. The default settings for these two states are normally opening size and minimum size. You can, however, edit the settings by manually changing either or both of these default values. Perhaps you might want the former to be only an intermediate size, sufficient to display all of its icons and nothing more; or you may find the latter too tiny and wish to enlarge it.

Double-click any of your disk icons, and you will see another change. The clunky fuel gauge on the left side of the window is gone. In its place, the window's title bar contains a text message that shows both the percentage and approximate amount (in kilobytes or megabytes) of disk space in use, as well as the amount that is free. On the main Workbench screen, you will also notice that the title bar now ►

By Sheldon Leemon



ILLUSTRATED BY BOB SCOTT

distinguishes between graphics (chip) memory and other memory in displaying the amount available.

YOU'LL ALSO GET BETTER MILEAGE ON THIS ROAD

The new Workbench not only looks better, it also works better. It now does just about everything that

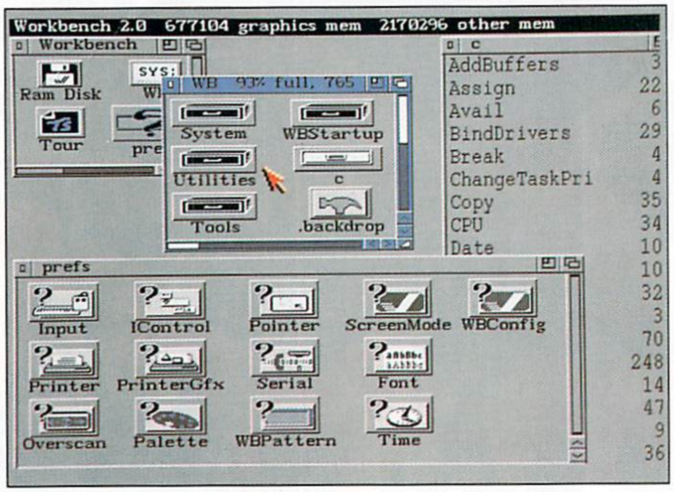


Figure 1. The new 2.0 Workbench screen is clear and well organized. A 3-D effect, enhanced through color, makes icon buttons appear to be raised when unselected and depressed when selected.

used to require CLI-style commands. For example, it can display and manipulate every file and directory on a disk, not just those for which there is an icon file (one whose name ends in ".info"). To see for yourself, select Show from the Window menu on the Workbench screen, and two sub-items appear: Icons Only, which is the default selection, and All Files. Choosing the latter shows you the new "busy" pointer (a stopwatch has replaced the "Zzz") as new drawer icons are added to the Workbench window. You may need to scroll around the window to see them all, but eventually you will find icons for the C:, s:, devs:, and other directories that never existed on Workbench before.

Double-click the C drawer, and you will learn another fascinating fact about the new Workbench. It not only displays icons for "CLI-only" type programs, but it can also run them from those icons. Size up the C window so that it shows all of the icons. (You may wish to select Clean Up from the Window menu so you can organize them.) If you double-click on the DIR icon, a requester pops up that allows you to add command arguments just as you would on a CLI command line (specifying which directory to list, for example). It is not even necessary to click on these nonWorkbench-type icons such as DIR to access this new single-line CLI capability. Simply select Execute Command from the Workbench menu, and the same requester appears, allowing you to type in the command and its arguments.

Back to our DIR example above: If you simply want a listing of the directory in which DIR resides, click on OK to bring up the Workbench Output window, which will scroll the entire directory listing until you stop it with the close gadget. You can halt output to this window by pressing any key—just as with a regular CLI window–but do not worry if the contents scroll by too quickly. When resized to their maximum height, the new console windows will show as much previously displayed text as will fit.

Choosing to "Show All Files" does not actually create icon (.info) files on your disk. Instead, Workbench creates icons that exist only in RAM (see Figure 2). (Version 2.0, by the way, allows any program to do this, creating an icon in the shape of a printer for a print spooler program, for example, so that you can drag document files on top of that icon to print them.) About the only disadvantage to these "fake" icons is that you cannot "snapshot" them (save their arrangement within a window whose position and size you can also save); but if you wish to do so, you can turn them into real icons by loading them into the Icon Edit program and saving them to disk.

The process of creating fake icons, however, can take a long time if you choose to display the contents of a large directory, and you may not even have room on screen for all the icons. In such a case, you may wish to view the directory as a list of names, not icons.

For example, in the C window you opened previously, select View By from the Window menu and then choose the sub-item Name. The directory-display window instantly turns into a scrolling list of names that looks like a sorted version of the output of the CLI command LIST. (You can also choose to have the list sorted by date or file size, instead of by name.) This is no ordinary text display, however, because each line of text is actually an icon that you can drag, double-click, or whatever you wish.

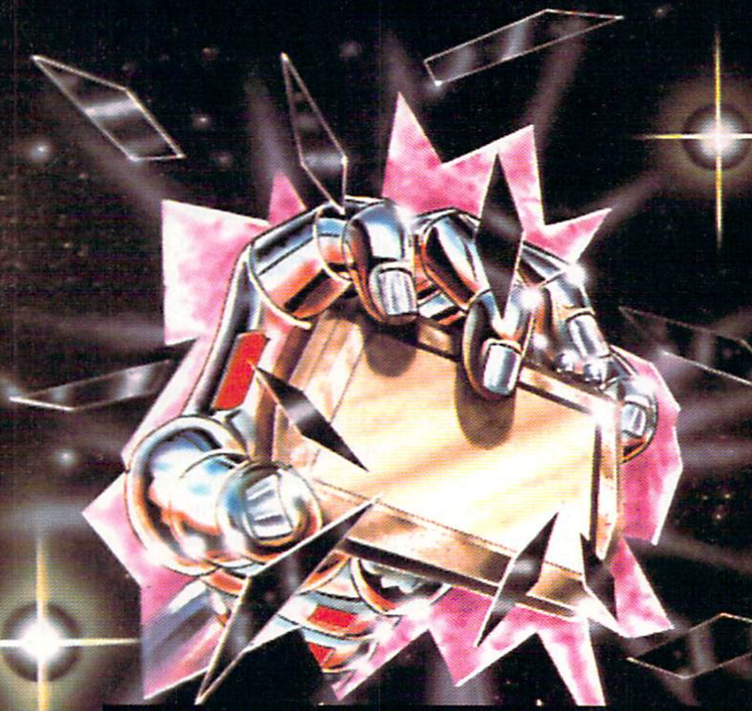
The new Workbench even includes an icon-driven equivalent to the s:startup-sequence file. Called the WBStartup drawer, it executes automatically at startup time whatever program icon you drag into it. Using ToolTypes entries (commands that can be added by selecting the icon and choosing the Information menu item), you can specify the order of execution, as well as whether you wish to wait for one program to finish before the next is started.

DRIVING IN COMFORT

More polished and more powerful, Version 2.0 of the Workbench is also easier to use. If you scan the menu bar, you will see that menu items are now grouped by options that apply to: (1) the Workbench as a whole; (2) drawer windows only; (3) all icons; and (4) Tools, by which applications can add their own items to the Workbench menu. Many of the menu items now have keyboard equivalents. For example, if you select an icon and then press Right Amiga-R, the Rename requester pops up.

Several options exist for selecting more than one icon at a time. The Window menu now has a Select ►

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Content item that automatically selects every icon in the window. For selecting some but not all, you may want to try "drag-selecting" a group of icons by dragging the mouse on a diagonal path while holding down the left button. This creates a box of dotted lines, and every icon within the box is selected when you release the mouse button. Similarly, you no longer have to select individually all the icons in a window to snapshot them. Simply choose Snapshot All from the Window menu, and it's done.

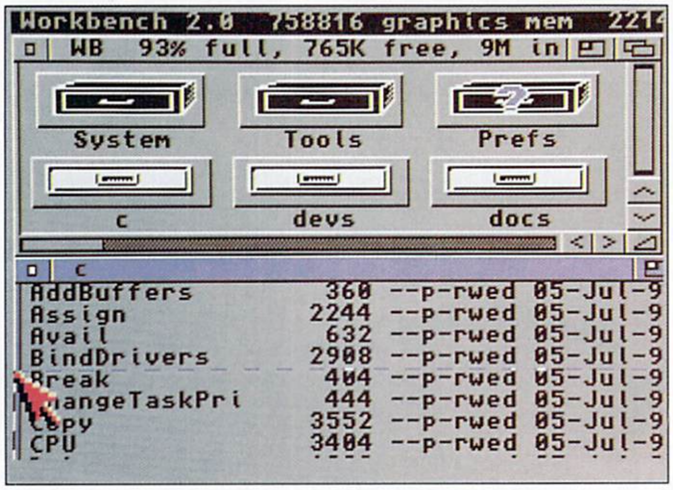


Figure 2. There are lots of new features on the 2.0 Workbench. For example, you can now display a drawer as text, drag-select multiple icons, and display files and directories that don't have icon files.

With 2.0 you can say goodbye to the Empty drawer of previous Workbench versions. Using the New Drawer menu item, you can create a new drawer icon, rather than duplicating an empty one. Workbench 2.0 also exhibits some real evidence of multitasking. The Rename requester, for example, no longer suspends all activity until you finish renaming. The same holds true for starting a program: double-clicking a tool icon such as Say no longer results in a busy signal from your pointer; instead, the message "Attempting to load program 'Say' " appears in the title bar of the Workbench screen—leaving you free to perform any other action while the program is loading.

You can use the right mouse button as a "cancel" button, nullifying whatever the left mouse button happens to be doing. Start to resize a window, for example, by dragging its size gadget with the left button depressed. If you change your mind, click the right button before letting go of the left one, and the window snaps back to its original size. You can use this feature to stop dragging an icon or to cancel selection of one of a group of selected items.

A really clever new 2.0 option is the Leave Out feature. While Workbench previously allowed you to move a tool or project icon manually from its drawer onto the Workbench window for easy access, it never before provided a way to do so automatically, so that your most-used programs were available as soon as you booted Workbench. Now, however, if you select, say, the Shell icon on your Workbench disk and then choose Leave Out from the Icons menu, the icon moves out of its drawer onto the Workbench window and stays there—reappearing in that window whenever you start Workbench again. (Select Put Away when you no longer want the icon there.)

"Preferential" Treatment For 2.0 Travelers

While many of the programs on the Workbench disk have received a total makeover (we will discuss some of these later), the biggest changes involve Preferences. Previous versions used a single Preferences editor to create a file called devs:system-configuration in which all preference settings were stored.

Under the new scheme, each group of preference settings (printer text, printer graphics, date and time, and so forth) has its own editor, and individual setting files are all stored in the env:sys directory. (The system will, however, still respond to system-configuration settings whenever possible if the file exists on the boot disk.) Preferences are updated through the use of "file notification," a new feature that allows Workbench (or any other program) to be notified whenever a file is changed. Any of your preference settings, therefore, can be changed simply by copying a new file to the appropriate directory.

Although some of the Preferences editors are similar to parts of the old Preferences program, their functions have been greatly expanded. For example, take the Printer editor through which you inform the system what kind of printer you are using. It still has a variety of buttons that let you select the printer, printer port, type and size of paper, print quality, and margins; and it still incorporates the traditional Save, Use, and Cancel buttons. But now it also offers some new menu options.

As with most of the new Preferences editors, its Project menu allows you to save a particular setting to disk (Save As) or to load one in (Open). Its Options menu even lets you save files with icons that install the settings automatically when you double-click on them. The program's Edit menu allows you to restore the default settings, the ones you saved last, or the set you started with. The Palette editor—used to select new Workbench colors—has similar menus, but its Edit menu now also allows you to select any one of ten alternate color sets. To take a quick run through these color sets, simply start up the Palette editor, hold down the Right Amiga key, and then press each of the number keys (1–9) in turn.

In addition to such editors as Input, PrinterGfx, Serial, Time, and Pointer that duplicate the functions of the old Preferences program, there are some brand-new and very exciting editors. The Overscan editor lets you select a size both for standard overscan (the largest visible display on your monitor) and for text overscan (the size you want your Workbench display to be). ►

Once you have selected your screen-size preferences, use the Workbench Screen Mode editor to choose the display mode for the Workbench screen, its size, and the number of colors (see Figure 3). If you have an A1084-style monitor, you can choose Hires or Hires-Interlaced, with two, four, eight, or sixteen colors. If you have the ECS Denise chip, you can also select 1280-pixel-wide SuperHires or SuperHires-Interlaced, in

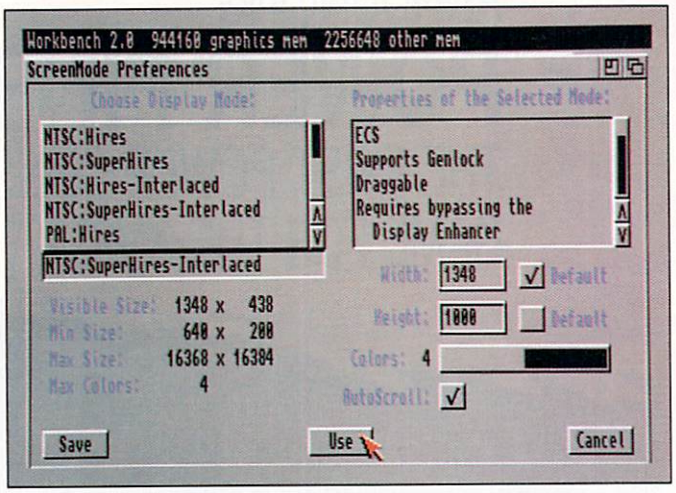


Figure 3. You better have a lot of chip RAM if you decide to select, say, a 1348 × 1000 Workbench in SuperHires-Interlaced mode with the new ScreenMode Preferences tool.

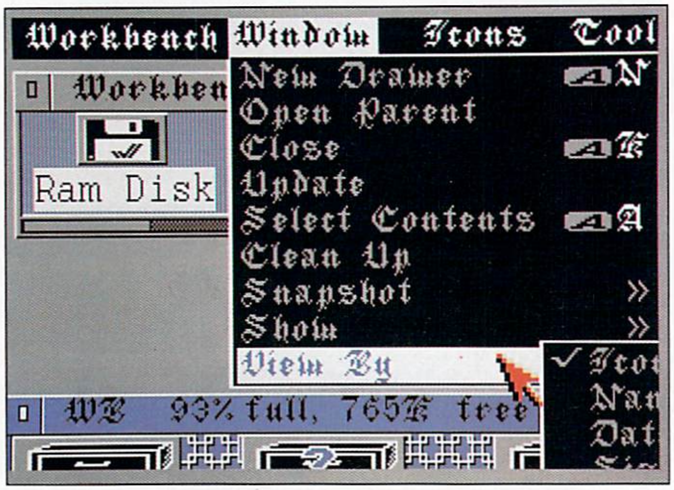


Figure 4. You can customize the Workbench screen by selecting your own fonts for icon text and menus, and by defining background patterns for Workbench and drawer windows.

two or four colors. With both the new Denise chip and a multiscan monitor, you can select Productivity mode (640 × 480 noninterlaced) or Productivity-Interlaced (640 × 960 interlaced). (To let the system know you have a multiscan monitor, drag the Multiscan icon from the MonitorStore drawer on the Extras disk to the Monitors drawer on the Workbench disk.)

The Workbench display size defaults to the size you selected for text overscan, which allows you to set a Workbench screen that is, say, 672 pixels wide, large enough to display a full 80 columns of text in a window that has borders and a scroll bar. You can, if you wish and have the memory to do so, even set a Workbench screen that is larger than the visible display. Set Width to 800 and Height to 600, and you will end up with a scrolling Workbench screen that size.

There are several ways to move around this big screen. If you select the Screen Mode editor's AutoScroll feature, you can scroll the screen merely by moving the pointer over the edge. You can also grab the title bar and drag the screen as usual, now both to left and right as well as up and down. You can even drag the screen from any location simply by holding down the Screen Drag key (which defaults to the Left Amiga key, but can be changed using the IControl editor) and moving the mouse. This method works on any screen and makes it easy to slide a screen on which the title bar is not visible.

A pair of new Preferences editors gives you even more control over the appearance of your display. The WBPattern editor lets you replace the solid background in the Workbench or drawer windows with a colored pattern. (As with the Pointer editor, the file it saves is in IFF format, which means that you can edit it as a brush in a paint package.)

The Font editor allows you to install your preferred font in any of three places: under the Workbench icons, in menu bars and system text messages, and in any application that uses the default system text (see Figure 4). For a change of pace, try setting the icon font, say, to Garnet 16 and the screen font to Courier 15. (Be sure to check out the menus when you set the screen font.) Be aware, however, that changing the default font may not work well with some existing applications that assume they are getting the standard eight-pixel system font.

While we are on the subject of text, it may be useful to mention that 2.0 incorporates both faster text display (no need to run the FF—FastFonts—program any more) and support for the ColorFonts standard. (You can even install multicolor fonts on the Workbench.) Version 2.0 also supports bitmap font scaling, by means of which the system can produce a rough version of a font at a size other than the actual one. To get an idea of how this works, select Execute Command from the Workbench menu and type "Setfont topaz 14 scale." A Workbench Output window pops up, allowing you to type in text using the scaled font. As you will see, the width of the letters is very uneven—scaled bitmaps are clearly not the same as scalable outline fonts (which are in the works for a future Workbench release).

NEW GOODIES IN THE GLOVE COMPARTMENT

Let's poke around in some of the other Workbench program drawers to see what else is new in 2.0. In the System drawer, we have lost FastMemFirst (now integrated into the system and no longer needed) but gained RexxMast, the master program for the ►

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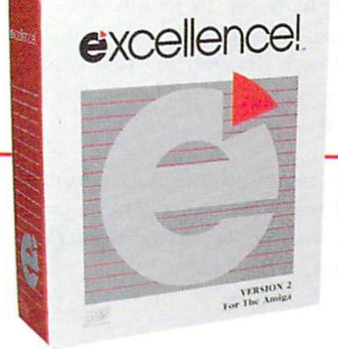
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interprocess command language ARexx. Greatly facilitating the means by which one program can communicate with another to allow them to work together, ARexx has been strongly supported as a means of enhancing the Amiga's multitasking power. Now that it is part of the system software, it should find even wider support.

The Utilities drawer drops NotePad, but picks up

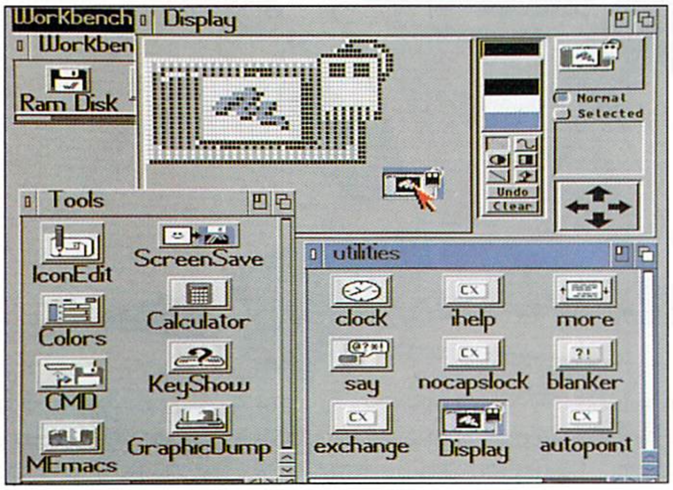


Figure 5. The IconEdit tool has a new self-notification feature that allows you to load an icon into the editor just by dragging its picture to the IconEdit window.

Display—a full-featured, IFF-graphics file-display program—and Commodities Exchange—a series of programs that monitor keyboard and mouse input with an eye to altering or preempting the effects of other programs on such input.

Examples of Commodities Exchange programs include: NoCapsLock, which nullifies the effect of the CapsLock key should you press it accidentally; Blanker, which blanks the screen after a certain period of time; AutoPoint, which automatically activates the window under the pointer; IHelp, which provides keyboard control over front/back window movement and minimum/maximum window sizing. Although a number of such programs were written as accessories for Workbench 1.3, Commodities Exchange makes them standard equipment and also ensures that hot-key definitions do not overlap by allowing users to define their own hot keys and key priorities for each Commodity.

The Tools drawer of the Extras disk contains a completely new IconEdit program to replace the original, which was not Amiga-like in appearance or function. It has such paint-program features as line, box, and circle drawing, along with fill and undo gadgets. It loads and saves IFF brush files, with the Load and Save options now using real file requesters. (A standard file requester is now included with the system software.) It even lets you edit the default icons that the system uses when there is no icon file.

One of IconEdit's neatest additions is the use of a new "smart-window" feature that notifies the program when an icon has been dragged into it (see Figure 5). To see it in action, simply start the IconEdit program and then drag any icon into the large editing window in the upper-left corner. The program automatically loads that icon into the editor.

CLI Pit Stop. . . and Happy Motoring!

Although the Workbench now handles many of the chores formerly reserved for the CLI, the command environment has not been dropped. On the contrary, it too has been improved and expanded. The Shell has been integrated into the CLI, and it now recognizes over thirty commands without loading them from disk. (The "resident" program gives you a complete list of "internal" commands.) The rest of the commands have been rewritten, and they are smaller, faster, and more flexible through greater use of pattern matching.

CLI windows now have close gadgets, and console windows such as the CLI support "copy-and-paste" functions. This means that you can drag your mouse across a portion of text in the window, select it (it will be highlighted in another color), go to another window, and then paste in that text using the Right Amiga-V key combination. This means that you can, for example, copy a directory listing from a CLI window into the window of the Ed text editor, or copy text from Ed to the MEMACS editor.

We have traveled quite a distance using our operator's guide to the new Workbench, yet we've still left a lot of ground uncovered. Some of the changes are "under the hood," and will not be visible until programmers take advantage of them. For instance, the Workbench does not contain any example of "public screens," a mechanism by which one program can open windows on another program's screen (including windows that would normally open on the Workbench). Nor does it include programs to invoke the "no-click" option for floppy drives, or the use of the asterisk as a CLI wildcard.

Until networking becomes popular, it will be hard to demonstrate "record-locking" (a means of keeping one user from changing part of a file that another user is reading). In addition, although the system defaults to formatting floppy disks using the standard file system, Workbench 2.0 has built-in (ROM) support for FFS (FastFileSystem) floppies. It can even boot from them.

In short, there are so many changes that it would be impossible to cover them all here. I do hope, however, that our brief road trip will lead you to some of your own discoveries. Take your time and enjoy the new scenery: Workbench 2.0 is definitely here to stay! ■

Sheldon Leemon is the author of Inside Amiga Graphics *and the co-author of* The AmigaDOS Reference Guide. *Write to him c/o* AmigaWorld *Editorial Dept., 80 Elm St., Peterborough, NH 03458.*

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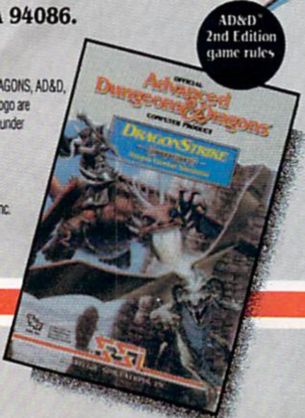
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Digital Dexterity

#20

A continuing series of tips, techniques, and tricks for creating more imaginative Amiga graphics.

By Joel Hagen

IN KEEPING WITH *AmigaWorld*'s emphasis on video this month, we'll focus on digitizing tips in this installment of *Accent*. Although a few may benefit from more specialized equipment, most of the techniques I will describe are based on inexpensive improvisation and practical ingenuity.

Find a Lens... Any Old Lens

No matter what kind of digitizer or camera you use with your Amiga, a variety of lenses can greatly extend your digitizing options. If you are using a security camera or an old home video camera, the threads are probably the same as those on a 16mm movie camera. Flea markets and yard sales can turn up a variety of interesting lenses. Some will have adjustable F-stop settings that many simple video lenses lack. Others will have different focal lengths or fields of view. I always keep one old lens handy for exotic optical experiments (such as those outlined later in this column).

You can, of course, use your SLR (single-lens reflex) lenses with your video camera by purchasing a C-mount adapter. This shallow, threaded funnel lets your 35mm SLR lenses serve double duty. In addition, a good wide-angle zoom lens can be especially valuable because it allows easy framing of digitized art without moving either camera or source. Look in odds-and-ends bins in your local photo store for the adapter.

If you do not have a macro lens for your video camera, there are still good ways to shoot startling close-ups. If you find you are too close to an object to focus on it, begin unscrewing the lens gradually until it comes into focus. You will be amazed at the enlargements this simple method can achieve. To get even greater magnification, use any magnifying hand lens you might have around. Ideal for the purpose are lenses mounted in small adjustable stands, such as those used by stamp collectors. Simply mount the hand lens over the object and focus the camera through the lens while watching the live image on the monitor.

I have even "hot-glued" a telescope objective to the front housing of a TV lens for extreme enlargements. The illustration of the date on a penny that accompanies this column was shot in just this way for a project in which I am cataloging mint errors in Lincoln one-cent pieces I have collected. The video lens cost three dollars in a lens bin, and the telescope objective is from a child's 60× refractor. Neither was damaged by the temporary setup.

You can easily substitute a VCR for the camera as the video signal for the digitizer. Some digitizers can record color images directly from this signal. If you have one or wish to buy one, you can use a color splitter to electronically break a color signal into red, green, and blue components for separate scans. Even if all you have is a black-and-white camera with a color wheel, play the VCR into a color television and point your digitizing camera at the screen.

Use the freeze-frame feature on the VCR to select the image or sequence of images to capture, and then use the color filters as you would for flat art. The resulting color image is remarkably good. Remember to take advantage of brightness, contrast, and color controls on your TV. Also, experiment with setting the video camera just a bit out of focus to soften the captured image. You will be surprised how much you can do with this simple approach. Perfect image clarity need not always be the main criterion in digitizing. Artistic projects often benefit from accidental effects, so don't feel hampered by a lack of expensive

Inventiveness, not expensiveness, is the key to pulling off some pretty imaginative digitizing tricks.

equipment. Apply your imagination to what you have at hand.

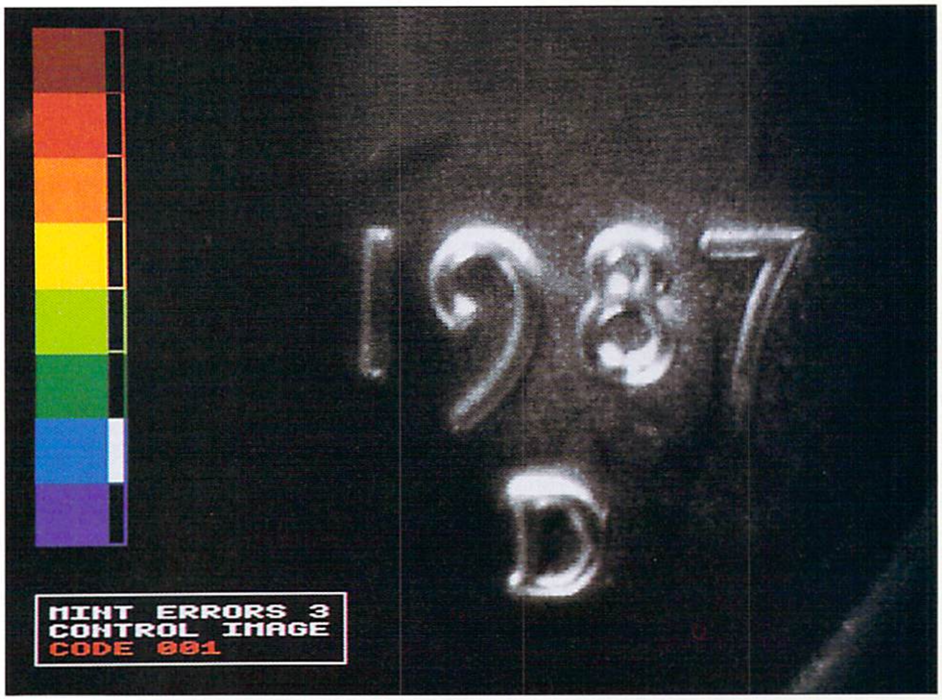
Attending to Domestic Matters

When clarity *is* the goal on a digitizing project, any loss of quality is frustrating. For example, you may experience a "herring-bone" interference pattern when you try to digitize an image. The problem may be color: Some digitizers work best with black-and-white cameras and will produce reduced quality if you use a color model.

Many times, however, these patterns result from poor grounding. I use alligator clips on my digitizer to ensure a good ground from the outside metal sheath of the RCA connector to a bare screw on the chassis, and I do the same for my sound sampler. The difference this makes can sometimes be surprising. One manufacturer recommends avoiding a "ground loop" by using a three-prong grounded plug only on the CPU itself. All other components attached to the computer then use three-to-two adapters to plug into the power strip.

While we are on the business of organizing your equipment, quite a few hints and tips come to mind about how to set up your digitizing area. I find a tripod to be a much handier video-camera mount than a commercial copy stand. I can tilt the head down for flat art, or up to shoot live portraits or three-dimensional subjects. In fact, I have gone a step further and mounted a tripod head on a monopod made from plumbing pipe bolted to the floor.

To avoid plugging and unplugging RCA cables in the back of the Amiga from the monitor to the digitizer as you line up the live image for capture, get an inexpensive video switcher from any video store. In the same vein, a data switch and cables will let you switch easily among all your parallel-port functions without shutting off power. Mine is mounted under my desk so I can simply rotate the switch for digitizer, printer, sound sampler, and tricorder. The cost of all this was about $80.



This close-up of the date on a penny was shot through two inexpensive lenses glued together.

As a rule, I find that fluorescents give me cleaner exposure and better color than incandescent lights. The most effective setup I have seen is that designed by Gene Brawn (The CopyGym, $250), a frequent contributor to *AmigaWorld*. He uses four horizontal fluorescents mounted around his digitizing stage. This avoids hot spots and shadows by providing even, soft lighting. For most of my studio work, I use overhead fluorescents as the main light source, augmented with a smaller fluorescent at the edge of my desk beneath the camera.

I am fortunate to have found an excellent second-hand, black-and-white home video camera that is very light-sensitive and does not require intense lighting. If you are just beginning to look for a camera, run a want ad in the local free shopper for something similar. Check for burned-in spots on the video tube by pointing the camera at any white surface (a refrigerator, for example) to see if any spots or shadows move when you move the camera. You should be able to find a good camera for under $100 with a little legwork. ■

Joel Hagen's credits include work in art, astronomy, science fiction, and software development. Write to him at 10512 Sawyer, Oakdale, CA 95361. Please include a stamped, self-addressed envelope for a reply.

Amiga Basic Text Display

By Bryan D. Catley

EVEN THOUGH IT is a powerful language, Amiga Basic does not provide direct access to many of the Amiga's features for displaying text on the screen. At first glance, it seems you cannot display text at any x,y pixel location in bold, underlined, italicized, or any combination of these styles; nor can you display text in the JAM1, Inverse Video, or Complementary modes. All is not lost, however. By calling operating-system routines and using subprograms, you can access these features to display text efficiently and artistically.

OS Calls to the Rescue

Before running a program with operating-system routines (ROM Kernel routines), you need to check and prepare. First, the names of the routines are case-sensitive, so be *sure* to type them with upper- and lowercase letters exactly as shown. Second, if the graphics.bmap file is not already in the current directory or the Workbench's libs: directory, copy it there from the BasicDemos drawer of your Extras disk.

To print on screen other text styles, such as italics, you can call the ROM Kernel routine SetSoftStyle& to change the style, and then output the text with the Print statement. Enter the following quickie program to see how this all works.

```
LIBRARY "graphics.library"
' now set italics
CALL SetSoftStyle&(WINDOW(8),4,255)
LOCATE 5,5
PRINT"This is a line of italics!"
' now return to standard style
CALL SetSoftStyle&(WINDOW(8),0,255)
END
```

As you can see, the program produces italics, but chops up the text in the process! It does so because the Print statement displays each character individually in its own eight-by-eight pixel area, and, since italics are formed by "leaning" each character into its neighbor's area, the Print command chops off a portion of each one. Therefore, you need to display the text as a complete string rather than as individual characters. The Move& and Text& calls are just the ticket. Replace the Locate and Print statements with:

```
' locate to x-pixel 35 and y-pixel 42
CALL Move&(WINDOW(8),35,42)
' display the text as a string
CALL Text&(WINDOW(8),SADD("This is a line of italics!"),26)
```

These two calls set the screen location and display the text as a much more readable string.

You may set the text mode with a similar statement. (JAM1 mode displays text in the current foreground color, while the background is left untouched; JAM2 shows text in the current foreground color and fills the background with the current background color; Inverse Video reverses the roles of the foreground and background colors; Complementary mode uses the complements of the current foreground and background colors. To calculate a color's complement, subtract its palette number from the highest available palette number for the current screen.) For example,

```
CALL SetDrMd&(WINDOW(8),0)
```

sets the JAM1 mode. The following sample program combines Move&, Text&, and SetDrMd&:

```
LIBRARY "graphics.library"
' draw some lines
```

Continued on p. 74

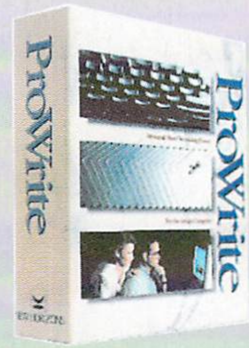
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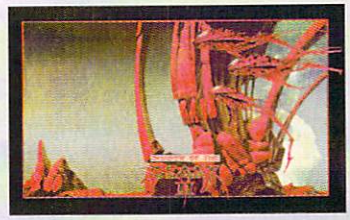
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From p. 66

```
FOR n=10 TO 18 STEP 2
  LINE(5,n)-STEP(96,0),2
NEXT
' set JAM1 drawing mode
CALL SetDrMd&(WINDOW(8),0)
' display some text over the lines
CALL Move&(WINDOW(8),5,17)
CALL Text&(WINDOW(8),SADD("This is JAM1"),12)
' reset to JAM2 drawing mode
CALL SetDrMd&(WINDOW(8),1)
END
```

While the above code certainly makes effective use of the Amiga's text-drawing features, the multitude of Call statements with unintelligible parameters is cumbersome and destroys the program's readability. You can tidy up the mess by making use of Amiga Basic's subprogram capabilities.

SUBSTITUTE THE SIDEKICK

Subprograms are like subroutines except that they are bounded by SUB. . .END SUB statements (instead of label. . .RETURN statements). They may be invoked by name alone (rather than using the GOSUB command) and may receive and return information via parameters. In addition, they use their own local variables, meaning that variable x in the main program can hold a different value than variable x in subprogram-1, subprogram-2, and so on. What this means is that you can create a set of subprograms for handling text, save them to disk, and then use the Merge command to combine them with any program you wish. Note that while subprograms may appear anywhere within a program, by convention they are usually placed at the end.

For example, the following four small subprograms replace all those Call statements above. LocateTo defines the location of the text to be displayed; SetPrStyle sets the text style; SetPrMode specifies the mode of text display; and ShowText replaces the Print statement. Carefully enter the code; then type

```
SAVE "TextSubs",A
```

to save the collection of subprograms to your Amiga Basic disk in ASCII format. Please note that you may not use the menu Save option. The Merge command, which combines the subprograms with the main program, works with ASCII files only.

```
' LocateTo a Specific Pixel
SUB LocateTo (xpixel%,ypixel%) STATIC
SHARED FontHeight&
x&=xpixel%:y&=ypixel%+INT(FontHeight&*.75)
CALL Move&(WINDOW(8),x&,y&)
END SUB

' Set Desired Print Style
SUB SetPrStyle (prStyle) STATIC
prStyle%=prStyle
CALL SetSoftStyle&(WINDOW(8),prStyle%,255)
END SUB


SUB SetPrMode (prMode) STATIC
prMode&=prMode
CALL SetDrMd&(WINDOW(8),prMode&)
END SUB

' Display a Given String of Text
SUB ShowText (textIn$) STATIC
CALL Text&(WINDOW(8),SADD(textIn$),LEN(textIn$))
END SUB
```

While you are neatening up, saving the following collection of variable assignments (as ASCII with SAVE "TextNames",A) will make your final listing much more readable.

```
LIBRARY "graphics.library"
standard=0:underline=1:bold=2:italics=4
JAM1=0:JAM2=1:complement=2:inversvid=4
FontHeight&=8
```

As you can see, the first subprogram, LocateTo, contains more than the promised Call statements. The short calculation adds 75% of the value of the FontHeight& variable (which is shared with the main program via the Shared declaration) to the given y value. This allows you to specify print locations for the upper-left corner of the first character in the string.

Why is it necessary to add 75%? When Move& specifies a print location, it references the pixel that will be the left end of the text string's baseline. A text string's baseline corresponds to where the lower edges of letters such as a, b, and c rest. Letters such as g, j, p, q, and many punctuation marks have tails extending below the baseline, making it more awkward to determine the exact location at which a string of text will appear on screen.

As a guideline, the baselines of most standard Amiga fonts are 75% down from the top of each character (those that aren't are only one pixel off). So, if the height of the font is eight (as for the default Topaz font), you can specify the upper-left corner of the first character in your program, and then add 75% of the font's height to the y value used in the subprogram—much more straight-forward! You could simply add six, but the approach shown here gives you the flexibility to use fonts of different sizes, without having to modify your subprogram.

The other assignments in the subprograms simply ensure that the given values are converted to the appropriate format for the required parameter. Also, the Window(8) function returns a pointer to the cur- ►

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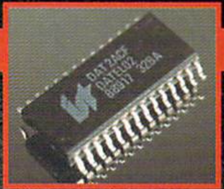
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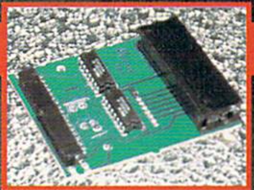
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rent window's "rastport," which is required by all the functions.

Work Together

Having spent all this time discussing these subprograms, it's about time to demonstrate what you can do with them! Enter the following program, merging in the two previously saved pieces of code, and then run the result.

```
' Examples Of Text Control Subprograms
'
' Now Enter the Immediate Command:
'MERGE "TextNames"
'
SetPrMode JAM1:x$="Some Shadowed Italics!"
SetPrStyle italics+bold
COLOR 2:LocateTo 10,10:ShowText x$
COLOR 3:LocateTo 13,10:ShowText x$
SetPrStyle standard
'
SetPrStyle standard:COLOR 2,3
SetPrMode JAM2
LocateTo 30,40:ShowText "Normal Text"
SetPrMode JAM2+inversvid
LocateTo 40,60:ShowText "Inversed Text"
'
SetPrMode JAM1
COLOR 3:LocateTo 50,80
ShowText "Experiment With The Rest!"
COLOR 2:LocateTo 50,81
ShowText "Experiment With The Rest!"
SetPrMode JAM2
'
WHILE MOUSE(0)=0:WEND
END
'
' Now Enter the Immediate Command:
'MERGE "TextSubs"
```

(Click the left mouse button to terminate the program.)

As you can see, the text displays you can produce with a couple of operating system calls are far superior to those possible with a mere Print statement! The output from your Amiga Basic programs is now on the way to looking like that of professionally written programs. ■

Bryan D. Catley is a professional software engineer with 20 years' experience with IBM mainframes and somewhat less with Amigas. Write to him c/o AmigaWorld *Editorial Dept., 80 Elm St., Peterborough, NH 03458.*

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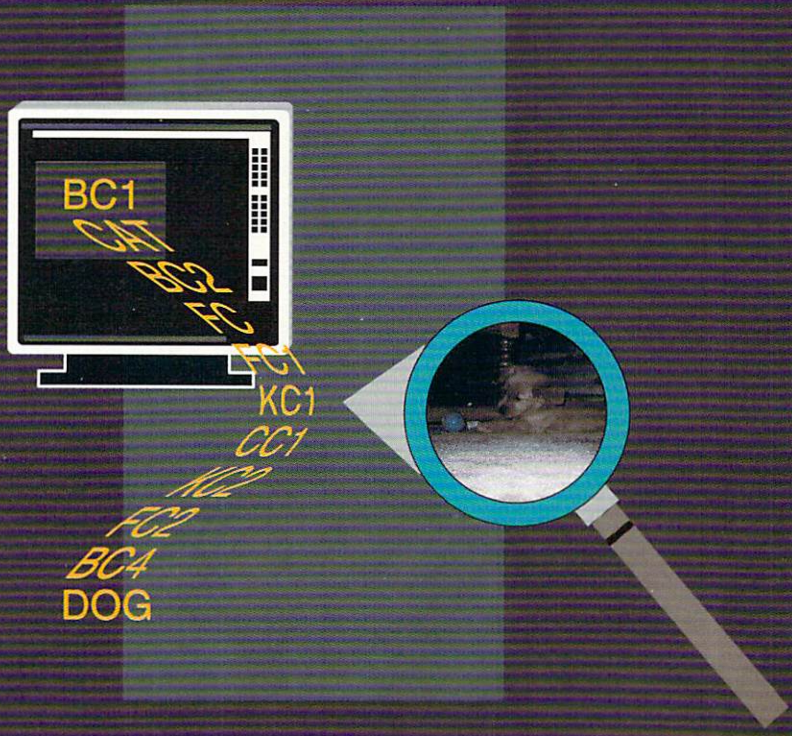


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MASTERING

Multi  Media

Interface Design: The User Comes First

By Gene Brawn

Editor's Note: Welcome to our new monthly column on multimedia. It will feature a variety of experts bringing you tips, techniques, or tutorials on different aspects of Amiga multimedia productions.

NO MATTER HOW elegant the program that drives your interactive multimedia presentation, it is useless if the user cannot access its database of pictures, sound, music, animations, data, and text. Everything you do, from playing an animation to printing a title, should focus on the user's needs and expectations.

When designing the interface, try to put yourself in the user's place. Why would he want to view this sequence? Are her feet getting tired from standing at the kiosk too long? Did he forget his glasses and cannot read the tiny type in your display? If you think this an impossible task, try a revolutionary procedure: Test the production on typical users! Software companies, advertising agencies, and manufacturers do this all the time with spectacular results.

K.I.S.S. and No Surprises

My testing sessions go most smoothly if I follow a few multimedia rules of thumb when constructing the application. The first is: Keep it simple. This holds true for both visual and program design. If users must search a cluttered display every time they need to do something, they probably won't try. Use the principles of graphic design to focus attention on the subject at hand, keeping options to a minimum.

Consistency goes hand-in-hand with simplicity. If your application has repeating elements, put them in the same place every time they appear—no surprises. For example, if you group your basic navigational controls along the bottom of the screen, always present them in the same order. Remember that all of these buttons need not appear on every screen. The Home button would not appear on the Home screen, for example.

The Navigator

The multimedia programmer's fundamental navigational tool is the screen "hot spot," which is simply an area of the screen that initiates an action when clicked. The most common form of hot spot is an icon. For example, an icon designed to resemble a projector might play an animation. Unfortunately, far too many icon buttons are so badly designed that they actually impede the user's ability to navigate an application.

Although a text label can clearly state an icon's function, an icon that needs such a label is a failure. Take the ubiquitous octagonal stop sign, for example. Not only does it instantly convey its meaning—in any language—but it also functions equally well as a pure icon, without the word "stop."

Unfortunately, there are very few unambiguous icons. So, instead of designing an icon for each function, create a class symbol for a group of related functions. Using on-screen, VCR-style buttons to control an animation is a perfect example. Each button has the same design, but a different symbol printed on it. You'd be surprised at how often you can group functions in this way.

You can conserve screen real estate if you use toggles—buttons that change their function when you click them. For example, an animation button labeled "Play" could change to "Pause" once the animation begins. You must, however, be absolutely certain that the user notices this difference. Often, changing a button's color is enough.

Just Looking, Thank You

A browser is a powerful way to navigate a multimedia application, especially for professional users who know what they are looking for. The simplest browser is the page turner, which allows the user to view the material in an unstructured manner, like leafing through an encyclopedia. The user clicks a button, perhaps in the corner of the screen, to move on to the next file on the disk—one that may not be related to the current screen. Implement the browser with care, for with it, users can bypass all your carefully constructed links and possibly miss the point of the presentation.

Link maps, graphic representations of all the modules and connections in your presentation, are also useful as browsers. The user calls up the map, which highlights the current screen, and clicks on another module to jump to its screen. As ►

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you may imagine, trying to display a large application's hundreds, even thousands, of links on a single screen is all but impossible. In that case, limit the map to a display of only those related links nearest the current module.

A similar navigational aid that's especially handy for historical presentations is the time line. You use it to examine concurrent, but otherwise unrelated, events. For example, if a promotional screen for a bus tour displays an array of dates and times, users can click on each to find out what sort of landscape they would be passing at that point.

Spell It Out

A highlighted word in a well-written paragraph is the ultimate icon. Hypertext—branching among logically linked passages based on key words—is one of the most powerful elements of multimedia. But, paradoxically, most users are not comfortable reading text from monitors, so keep your message short and try to use a graphic to reinforce the idea.

If possible, use Hi-res mode to display the blocks of text. Above all, keep your text easy to read, especially if you are working with NTSC (television) systems. Colors blur and text gets fuzzy, so you should increase the size of your typeface and reduce the length of your message for this format. If you are highlighting text links, give the user a way to turn them off, because too many highlights can detract from the point of the text.

Please, for everyone's sake, don't go crazy with fancy typefaces; a simple Times or Helvetica is preferable to an indecipherable Gothic. What you say is much more important than how you say it, so, to lend color to a page, use a picture or a graphic element rather than an overly complex typographical design.

Talk Back

Feedback is a fundamental part of presentations. One of your prime duties is to keep users reassured that all is well. If they click a button, let them know the command was received. The program should acknowledge the click with a sound or a flash. A more pleasant way to indicate "business as usual" is to play some music. If the screen is blank because the program is loading a file, a little digital Muzak will keep users confident they haven't done something fatal.

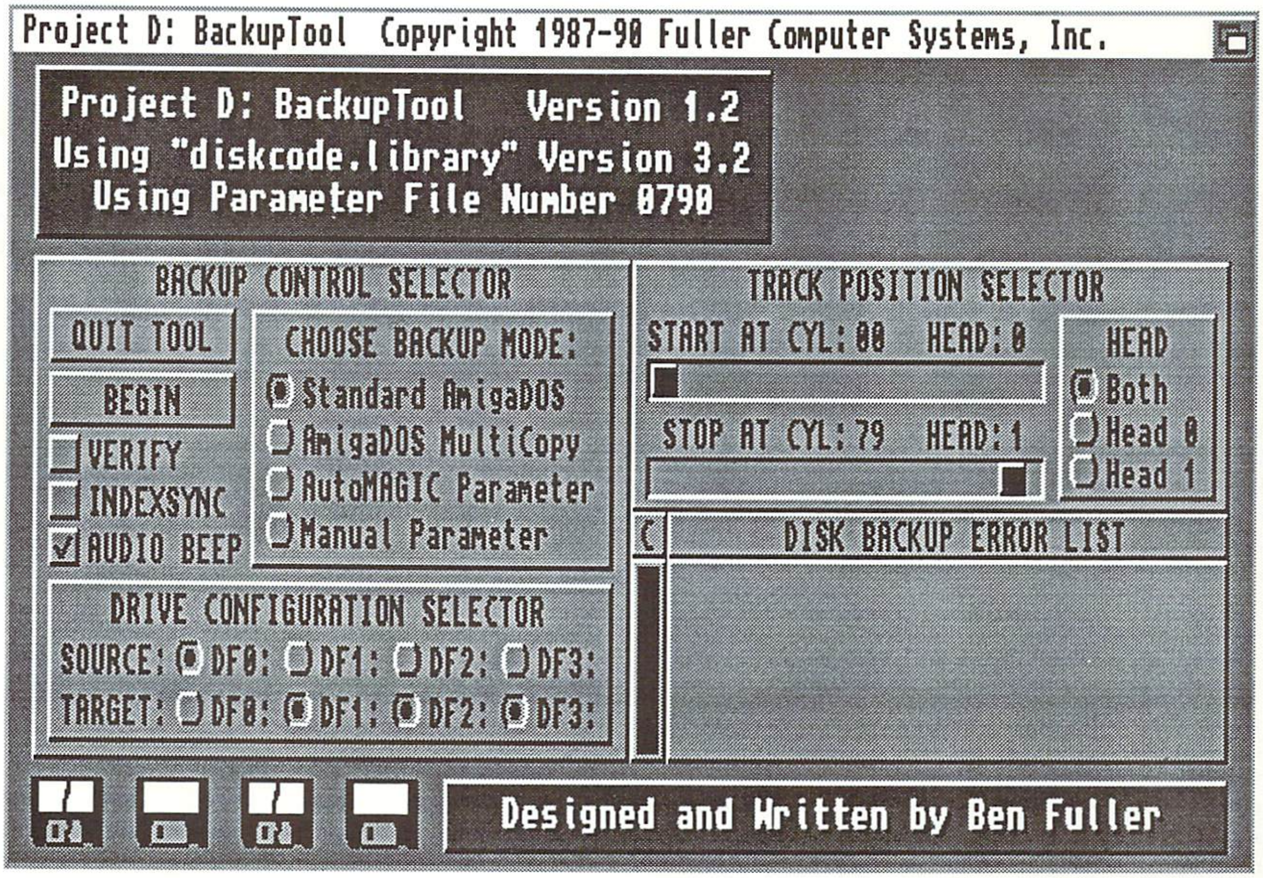
Equally helpful is an orientation screen explaining the use of the interface. Keep in mind that there will often be no paper documentation available, especially in public-information systems where a person may use your program only once. A context-sensitive, on-line help system is invaluable here.

Even with plenty of up-front help, multimedia applications are often so complex that users will get lost or work themselves into a dead-end. Provide an on-screen map of where they have been, so they can retrace their steps to the wrong turn and carry on from there.

Multimedia applications require attention to detail, anticipation of the user's needs, and, most of all, a nearly transparent interface. If you plan carefully and follow these techniques, your presentation will be effective and fun to use. ■

Gene Brawn is an interactive multimedia producer. Write to him c/o AmigaWorld *Editorial Dept., 80 Elm St., Peterborough, NH 03458.*

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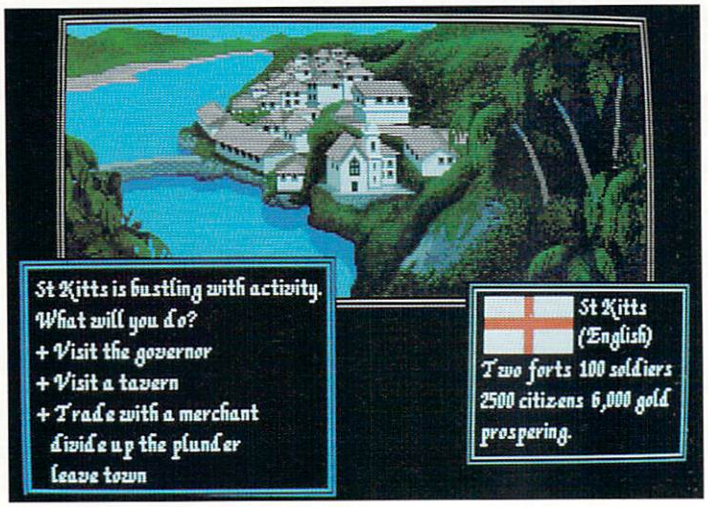
PIRATES!

By Peter Olafson

I'M BEING HELD captive by Pirates!. Rescuers need not apply. You'll flip an eyepatch when you see Microprose's first full-fledged Amiga conversion. It's as though this role-playing adventure game had been remade from the keel up.

In Pirates!, you're a buccaneer flying one of four flags and seeking high adventure in the Caribbean of the 16th or 17th century. There are hearts to be won, rich ports to be conquered, and ships to be sent to the bottom. You don't have to struggle with some arcane interface to do it either. Pirates! is all mouse and menu—save for a joystick-controlled sword-fighting sequence.

Sailing, while obeying the rule of the wind, is easy. Clicking the mouse anytime you're out brings up a menu of useful information that makes it even easier. The game is also delightfully open-ended; you can start pillaging right from the get-go and worry about the larger missions later. The manual is typically excellent, but you don't need it to have fun.



You'll find adventure in every port.

Pirates! is a delight for the eyes and ears. The illustrations that mark key events are like storybook pictures and are often brought to life with spot animation. The static graphics are rich and vivid; the game leaps from the screen. A lovely harpischord piece plays at the outset, and you can request one of a dozen other classical compositions. On the sailing screen, when the winds pick up, the clouds rush across the screen, and your ship gathers speed, there's a persuasive sense of motion. The game feels like what it's about.

On the features wish list are meatier, more complicated play options and the ability to save the game at any point. As it is, you must return to base first, and if the winds are against you, this can be a deck-swabbing chore. When those winds rise, however, I'm the most willing of captives. *($44.95, MicroProse, 180 Lakefront Dr., Hunt Valley, MD 21030, 301/771-1151. No special requirements.)*

BUDOKAN

By Graham Kinsey

UNLIKE MOST MARTIAL arts games, Budokan: The Martial Spirit does not immediately confront you with an opponent. The game begins in a dojo, from which you can enter various training centers. In these, you can practice the martial art of your choice (Karate, Nunchaku, Kendo, or Bo). You also learn to focus your Ki power, an energy ►

Crib Notes

By Peter Olafson

SOME PEOPLE GET postcards from sunny places, bills from the vet, and fliers for sales at Sears. I get letters asking how to kill the giant purple worms in *Dungeon Master* (FTL, $39.95).

• Tom Smith of Westminster, CO, is stuck on Level 2 of Dungeon Master in the "Time is of the Essence" riddle room. You have to be really quick here. Four moves to the left and two forward should do it. Use your cursor keys instead of the mouse for extra speed. If that doesn't work, your party may be too heavily laden. Dump some of the heavy stuff and try again.

Incidentally, before you even get to the riddle rooms, there's a handy item in a secret room off the main hallway. Don't just gallumph down every passage; you may be surprised at what you're missing. Any irregularity in the walls is worth investigating.

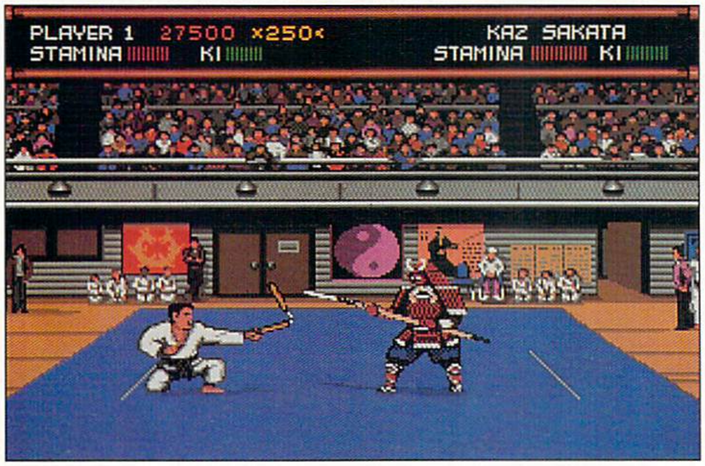
• David Chau of Alberta, Canada, is trapped between a rock and a hard monster—the major domo in the second stage of *Shadow of the Beast* (Psygnosis, $49.95)—and is dismayed that his newfound heavy-duty weapon won't cut it. Just stay at it, Dave. As I recall, all that's required here is persistence.

• Fellow game reviewer Rob Lawrence writes to suggest that you take your time exploring the wilderness area in *The Legend of William Tell* (Electronic Zoo, $39.95), but that you shouldn't be shy of invading the castle. Apparently it's not as tough as it looks. Rob says you'll need a decent crossbow and winder, however, and a fair amount of loot to bribe the baddies. (A certain key is out there, as well.) Arrows and munchies—apples, I bet—are plentiful inside the fortress. ►

that, once built up, can make a successful attack cause greater than normal damage. When you deem yourself ready, you're off to the famous Budokan arena in Tokyo for a tournament.

After deciding which art to learn, you can practice its moves by yourself or against a teacher. To fight, you first move the joystick to indicate your fighting stance; then you choose which attack or block to execute from that stance. Once you have practiced enough, you may go to the mat to spar against other students, who, unlike the teachers, will not hold back their attacks if you weaken. You can specify which of the four martial arts you wish to practice and which you want your partner to use.

After extensive sparring, you travel to the Budokan arena and battle experienced opponents, some of whom use fighting styles and weapons not taught in your dojo. Be prepared: You may use each of your arts only four times. You cannot specialize in only one or two arts and still hope to win the tournament.



This could be your hour of triumph—if you've practiced enough.

Budokan's concept is good, but its presentation is uneven. While the Extra_Halfbrite-mode graphics are only adequate, the sound is very well done, especially the music. The game runs on accelerated Amigas and does not use disk-protection; however, you cannot multitask or install it on a hard drive.

The biggest complaints I have are the randomly generated, and therefore useless, words of wisdom you receive from the Sensei and the way some of the complicated moves were implemented. (I have yet to execute any spinning jump attack via the joystick and have had only slightly better luck with the keyboard.) Not being able to choose different fighting styles was disappointing, as well. For martial arts fans, however, the problems don't distract too much from the complexity and pleasure the game offers. *($49.95, Electronic Arts, 1820 Gateway Dr., San Mateo, CA 94404, 415/571-7171. No special requirements.)*

Treasure Trap

By Chris Dickman

IN THE PAST five years, I've blasted countless aliens, spent weeks mapping my way through dungeons, and driven enough racing cars to fill a used car lot. I thought I'd seen it all, but I found Treasure Trap refreshingly different.

The premise is mundane enough: A gold-bearing ship has sunk on the high seas, and you must don an old-fashioned diver's outfit and wander through the rooms of the wreck, dodging bad-tempered aquatic lifeforms, to collect the bullion. Unlike most games of its ilk, the game does not reward razor-sharp reflexes.

Treasure Trap is more a game of strategy, with each of the 100 rooms representing a different puzzle to be solved. The starfish, octopi, jellyfish, sharks, and other denizens of the deep can indeed spell your untimely demise, but they're not hard to avoid. After collecting 80 bars of gold, you can invoke the help of a "smart fish" that will dispose of your immediate adversaries in short order. Time is more of an enemy than the malevolent sea creatures, with your oxygen supply constantly dwindling. Happily, extra oxygen bottles are scattered throughout the wreck to prolong your three allotted lives.

The detailed and lushly colored 3-D rooms are different ►

• Last time out, we spent some time in Throtl, the first city to liberate in *Champions of Krynn* (Strategic Simulations Inc., $49.95). This time, a few pointers on Kernen, the final one: Take the opportunity to get disguised before you set foot in here. It'll keep down the encounters. (Monsters like looking at other monsters.) Read the messages at the headquarters gate carefully. The guard strength fluctuates through the day, and you can make it even weaker if you explore thoroughly and match an odd item and nonplayer character.

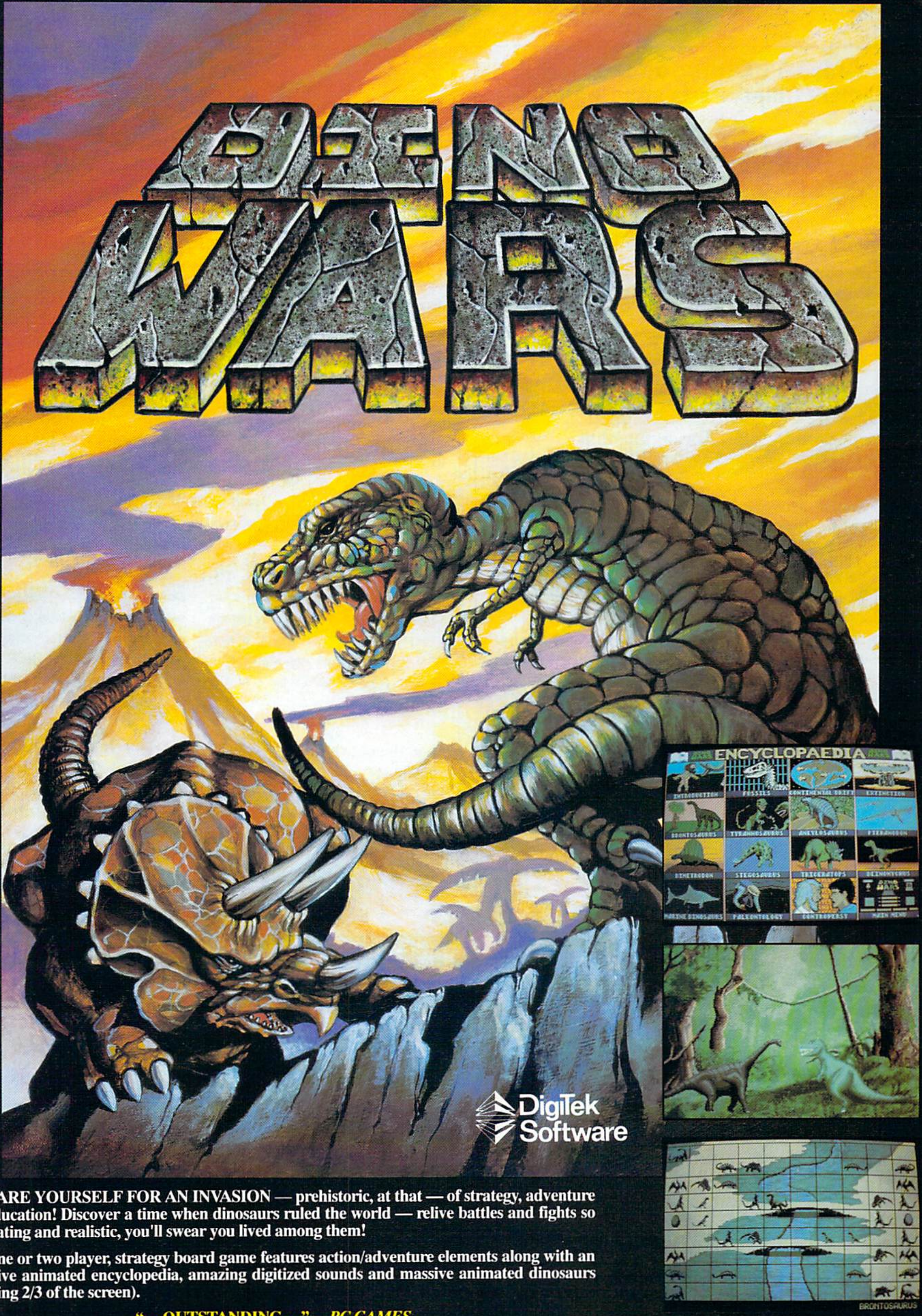
Don't see Myrtani's minions under every bed. You might have some allies, if you treat them right. I know, half the people in these games look as if they should be sitting on a rock in the desert, but a little trust never killed an adventure game character. . . more than once, anyway.

• The foyer of the monastery in *Future Wars* (Interplay, $49.95) has some folks praying for help. This puzzle calls for watching the monks in the foyer and, well, monkey see, monkey do.

The other most common FW question involves escaping from the cell on the enemy ship. You'll need two items. One's available in the tube station. (Yes, the newspaper machine works. If at first you don't succeed. . .) The other is a little more slippery, and I won't say more than that the basement monastery wouldn't be a bad place to look—very, very carefully.

• A fellow whose name I can't decipher is threatening to destroy his Amiga if he can't get out of Brooklyn in *Gold Rush* (Sierra On-Line, $39.95). He's missing one small, important item, and hence is missing the boat. He doesn't say which items he's found, though—so I'll try to "borough" into some of the game's more troublesome small important items.

Your house seems a bit empty, doesn't it? Naturally, there's that photo album to check out. A desk is almost always a source of an item or two in every adventure game I've ever played. Don't neglect the gazebo next door (or the flowers around it—you can't take them with you). The post office demands a visit, and the letter you'll receive (sooner or later) de-►


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DEINONYCHUS
MARINE DINOSAURS
PALEONTOLOGY
CONTROVERSY
MAIN MENU
BRONTOSAURUS

serves especially close attention.

Don't blow your wad in the stores. It's extremely tempting, but the journeys via Panama and Cape Horn require one item each. You don't want to get bitten on the one trip. . .or get scurvy on the other.

• Kevin Riley of Albuquerque, NM, is looking for some help in the castle in *Targhan* (Gainstar, $39.95). Make like Alice in Wonderland with the phials, Kev. The red one will help you see in the dark, and the beige is handy at the mouse hole.

• Dumbest Hint of the Month: When playing *Stryx* (Psyclapse/Psygnosis, $34.95), be sure to pick up your gun. It's lying on the floor at your feet when the game starts. Wander away, and you'll get wasted pronto, knocked off the platform, and then you'll never get it back.

Admonitions and Grovelings Department: Letters are coming in a tad vague on the specifics. If you're stuck in a game, let me know exactly where, what items you have, and what you've done to get unstuck. I'll get a hint in before the '90s turn into the '00s. I swear on a purple worm! □

COMPANIES MENTIONED:

Electronic Zoo, 3431-A Benson Ave., Baltimore, MD 21227, 301/646-5031.

FTL Games, 6160 Lusk Blvd., C-206, San Diego, CA 92121, 619/453-5711.

Gainstar, distributed by DigiTek, 8910 N. Dale Mabry, Suite 37, Tampa, FL 33614, 813/933-8023.

Interplay Productions, 1575 Corporate Dr., Costa Mesa, CA 92626, 714/549-2411.

Psyclapse/Psygnosis, 17 St. Mary's Ct., Brookline, MA 02146, 617/566-1569.

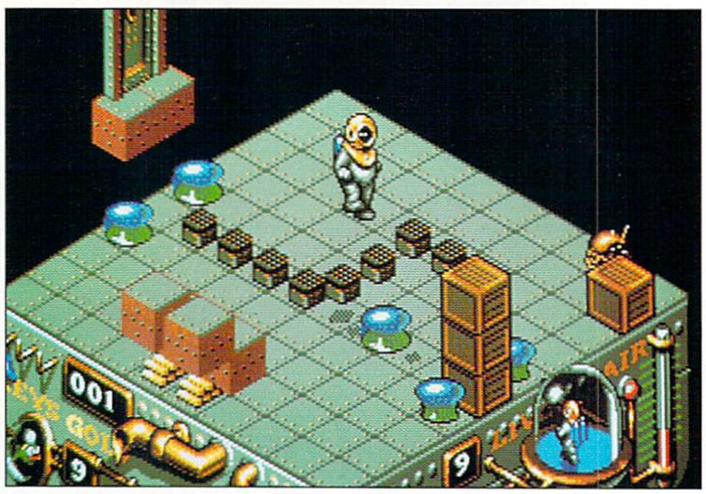
Sierra On-Line, PO Box 485, Coarsegold, CA 93614, 209/683-4468.

Strategic Simulations Inc., distributed by Electronic Arts, 1820 Gateway Dr., San Mateo, CA 94404, 415/571-7171.

Developers: To have your games considered for inclusion in "Crib Notes," send copies to Peter Olafson, c/o AmigaWorld *Editorial Dept., 80 Elm St., Peterborough, NH 03458.*

enough not to bore you during your quest. In fact, the entire playing area seems to be in constant motion, with your diver wandering around, and each room crawling with sea life and floating debris. While the game is visually rich, it's acoustically sparse. I could have used more audible feedback.

Treasure Trap supports extra memory, which expedites changing rooms, but it would not load on an A1000 with a Spirit Technology memory board. Electronic Zoo con- ►



If the diver in the bell jar collapses, so do you!

firmed that it knows about the problem and offered to refund my money if I couldn't get the game working. It also failed to load on an A3000, but finally ran well on an A500 with one megabyte of RAM. Although a joysick is supported, I found it easier to control the diver with the keyboard.

Treasure Trap is strangely soothing to play, but hard-core arcade gamers might find it wimpy. Some of the puzzles in the outer rooms are quite tricky to solve, and it was a welcome relief not having to worry about dying every ten seconds. If attractive, highly animated, puzzle-oriented games are your thing, you'll like Treasure Trap. *($39.95, Electronic Zoo, 3431-A Benson Ave., Baltimore, MD 21227, 301/646-5031. No special requirements.)*

Their Finest Hour: The Battle of Britain

By Kevin C. Rohrer

IN THE EARLY days of World War II, Hitler's battle-hardened Luftwaffe attempted to clear British airspace as a prelude to a cross-channel invasion, while Churchill's Royal Air Force (RAF) fought to deny them air supremacy. Their Finest Hour: The Battle of Britain (TFH) lets you be an ally of either side, embarking on a campaign either to defeat the Luftwaffe or to crush the RAF.

In the campaign, you create pilots who gain rank, honors, and skill over time. While you fly your aircraft, you also have general control of several others during a mission. Your performance reflects on that of the others. TFH also has a custom mission builder for designing your own missions.

In TFH, the RAF fights a defensive battle, using a Supermarine Spitfire or a Hawker Hurricane. The attacking Germans have more options: Messerschmitt BF109 and BF110 fighters, a JU87 Stuka dive-bomber, plus Dor- ►



Protect England's glory—or bomb it!

nier-17, Heinkel-111, and Junkers-88 level bombers. Each plane is accurately rated with flight and combat characteristics, and you can move to the different crew positions during battle. Heinkels have crew positions for the pilot, bombardier, and five machine gunners.

As a bonus, players with 1-megabyte Amigas get the added dimension of sound: the planes have distinctive engine noises, machine guns sound different from cannon, bombs and flak explode, and hits on your aircraft seem disconcertingly real. The view outside your cockpit is equally detailed and exciting. You can watch ships sinking, buildings and grounded aircraft being strafed and bombed, and your compatriots wheeling about in dogfights.

TFH is not really a flight simulator, for the difficulty factor is slight. Takeoffs and landings are simplified, and rudder control isn't available. The instrument panels, although unique to each type of aircraft, have also been drastically simplified.

TFH is built around an established game-system that has already proven to be a major success. A follow-up to Battlehawks 1942, TFH improves on the earlier game. It can be controlled via the mouse, keyboard, or joystick, is not copy-protected, and can be run from a hard drive or RAM:. Being able to fight on either side while flying any of several different types of aircraft—in individual combat missions or as part of a campaign—will keep even veteran pilots involved. *($59.95, Lucasfilm Games, distributed by Electronic Arts, 1820 Gateway Dr., San Mateo, CA 94404, 415/571-7171. No special requirements.)*

HardBall II

By Peter Olafson

ACCOLADE HAS TAKEN its classic baseball game, HardBall, thrown in everything but the dugout drinking fountain. . .and sacrificed much of what made the game a classic. On the surface, HardBall II has all the ingredients: instant replays, league play, a team and player editor, ten teams (all fictitious) and the guts of others, seven ballparks (most of them real), the ability to customize player positioning, a host of changeable play features, and lots more.

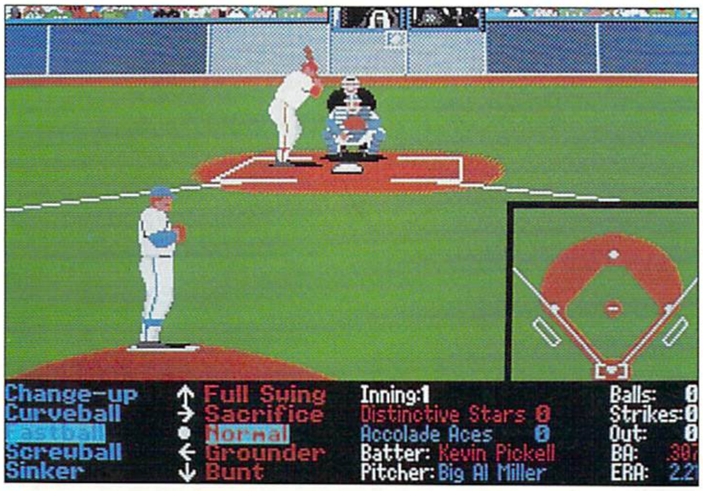
Yet, in some respects, this option-packed game is next to unplayable. For example, it offers four perspectives on the field, but none of them are entirely adequate to the demands of the game. If you adopt the closeup view from behind the batter and pitcher, you'll struggle to make a play once the ball's been hit.

At that point, the game shifts to a full-field view, with the outbound horsehide appearing as the smallest of flyspecks. The fielder handling the play is indicated by a change in color—too subtle an indicator considering the tininess of players. In short, there's no way to tell immediately where the ball is or who's going for it.

If you play only from the

full-field perspective, fielding is much easier, but the batter is so small you can't tell when to swing. You can switch between these modes, but trying graphics—and the sound lacks variety. The full-field graphics, by contrast, are rather delicate and pretty.

The attempt to improve an



Call your pitch *and* throw it.

to force user-friendliness on a reluctant game isn't my idea of fun.

HardBall II has the same easy-to-use menus for pitcher and batter as in HardBall, but some of the choices are confusing. When trying to pick off a runner from the mound, the joystick directions are based on the catcher's perspective. Hence, if you try to pick off the guy on first by pushing left, you'll throw to third. Thank goodness the runners are all dumb as dirt.

For all the variety of options, the action seems rather stiff. Runners are slow and far too easy to pick off. Throws all come in perfectly on target, regardless of distance. The computer opponent doesn't take proper advantage of human errors.

The closeup shots are surprisingly rudimentary—the Atlanta Braves of Amiga already excellent game is certainly commendable, but the original's very simplicity and cleanness of design were its greatest virtues. Even if it was low on options, HardBall just soared along. HardBall II never makes it out of the infield. *($44.95, Accolade, 550 South Winchester Blvd., Suite 200, San Jose, CA 95128, 408/985-1700. No special requirements.)* ■

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From p. 16

just below the Edit screen, you can use the mouse to draw continuous controllers, pitch bend, aftertouch, program changes, velocity, and so on. You can view the different controller graphs by clicking their corresponding buttons, and scroll through them right along with the track. Alternately, a conductor track can occupy the space below the edit screen. Here, you can draw in tempo changes and place time-signature changes at any point (as long as the various time signatures have the same denominator).

Write Now

Once you finish recording and editing your sequence, QuickScore can transcribe it so you can see it in standard musical notation. You can even print it. If your sequence is properly quantized, QuickScore transcribes accurately, and the output to a dot-matrix printer looks pretty good. There are a lot of limitations however: no time changes, no key changes, no quarter-note triplets, and no graphic editing. The Display menu offers



Tiger Cub has many nice features, including the ability to perform complex editing operations quickly. Unfortunately, it also has quirks. For example, the Copy and Fill functions work slowly and occasionally crash the program. The manual is above average, but does not explain some functions. I have also found that Dr. T's support line is constantly busy.

Kenneth Griffin
Bartlett, IL

a number of options that help you customize your display (setting stems, beams, bars per line, etc.), but the default settings are the most logical.

Tiger Cub is an excellent and versatile entry-level music program. It's easy to use, yet its simplicity belies its power—the 12 tracks, together with the elegant graphic editor, provide ample resources for making music. QuickScore is a good counterpart to Cub, and if your notational needs are very simple, it will do the job.

Tiger Cub
Dr. T's Music Software
220 Boylston St.
Chestnut Hill, MA 02167
617/244-6954
$99
One megabyte required.

IntroCAD Plus

Beginning. . .again

By Ron Bissett

INTROCAD PLUS CONTAINS all the same features as the original IntroCAD (reviewed May '88, p. 18). The main screen is similar, and the same three plotter drivers and wide variety of printer drivers are available. IntroCAD Plus also fits *AmigaWorld*'s summing up of the first version as "semi-pro CAD for rookies," because, although this upgrade is greatly enhanced, it is not a professional CAD tool.

What's New?

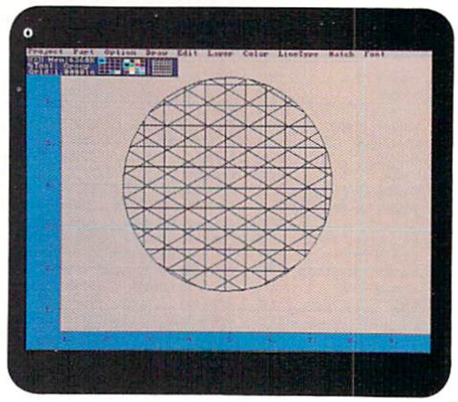
The first improvement I noticed is the option for switching out of interlaced mode via a pull-down menu. The noninterlaced mode suffices for most drawing applications, and it is a must for long drawing sessions unless you have a flickerFixer (MicroWay) or a high-persistence monitor.

Exploring the pull-down menus further, I found more changes and additions. There are now four options for saving drawings from the Project menu, and plotter and printer selection is handled outside the Plot and Print submenus. Through the Option menu, you can select English or metric rulers, turn the rulers on and off, and set the grid to English, metric, or binary. The EditPref selection presents three choices—What You See Is What You Get, ByRegion, and Either—for quickly redrawing the screen. These modes avoid redrawing the entire screen because each selects, in a different way, just certain areas to redraw. The Option menu also offers three bitplane choices for aiding in memory management.

The Draw menu has a few additions, including Text, XYLine, and Hatch. The Text and Hatch options also now have their own menus. Although you can create 1680 separate hatches using combinations of 16 patterns, 8 preset spacing options, and various line types, I would like to see a definable spacing feature for more flexibility. Granted, you can also create custom hatch patterns using the IntroCAD Plus script language, which easily handles a wide range of hatch spacing, but an ability to define spacing through the pull-down menus would certainly be convenient.

In a departure from the original version, which offered but a single font, IntroCAD Plus provides 16 fonts in a menu. You can draw fonts in several predefined sizes, custom fit them, or design your own fonts using the program's MkSFont utility—which also lets you assign single objects or groups of objects to any console key.

The Edit menu has several new functions that let you mirror or slant objects horizontally or vertically, transform them, arrange their positions in the



Choose English, metric, or binary grids.

drawing list, and, finally, assign them to different layers.

On the Level

Another major feature is the 16 layers now available through the Layer menu. While this is not an overwhelming number, they give the program much-needed flexibility. Switching layers is a very simple matter.

A handful of commands allows you to edit objects on specific layers or to hide layers. Choose Select in the Layers ►

screen to see all the layers at once, along with the objects contained in them. You can then edit individual layers by selecting the attribute you wish to change from the MarkLayer menu and clicking within the desired layer.

One of the most useful new features, the ability to define macros and keyboard equivalents, makes the program very fast and convenient for experienced users. To assign a command sequence to a key, just type the command path into the Console window and indicate the key. Still, the script-language option is even more useful. It lets you chain together complex command sequences and assign them to a single key. Because the program initializes its settings by using standard script files, you can also use the script language to customize the initial screen and to set configuration options upon opening the program.

IntroCAD Plus also supports ARexx ($50, William S. Hawes), the intertask-communication protocol that is slated for inclusion in Workbench 2.0. This means you can harness ARexx's math power to automatically create complex objects and exchange IntroCAD's database information with other ARexx-compatible programs. Whereas script commands execute pull-down menu commands, ARexx files can accept interactive input from IntroCAD's Console window and perform error checking, default substitution, and interpretation of those arguments.

For example, the Box.irx ARexx file that comes with IntroCAD Plus accepts up to four box parameters and allows for syntax interpretation of fractions (reading "1+3/8" as 1.375) in specifying arguments. When you start an ARexx program from the Console window, a Pause/Abort requester shows up on screen to let you easily halt ARexx-compatible programs that support this feature.

YOUR TURN!

As a very satisfied IntroCAD 2.0 user, I purchased the IntroCAD Plus upgrade. It provides many of the improvements I had hoped for; in fact, a spline feature is about the only thing that I could still want.

The quality of the printed drawings was an outstanding feature of the first IntroCAD versions, but there is a bug in the Plus print routine which causes terrible results.

Until Progressive issues a fix, I am reduced to drawing in Plus, deleting unwanted layers, and then printing in 2.0. This is a real inconvenience.

T.S. Hunter
Azle, TX

More Support, Please!

When I tried to exchange drawings with other software, I found that IntroCAD Plus saves only in IFF, IntroCAD, and Aegis Draw (Aegis/Oxxi) formats, and accepts only IntroCAD-format files. I hope that the next upgrade allows file exchange with more Amiga CAD programs and, just as important, with CAD software in other computer formats. The present limited access severely limits IntroCAD and well-nigh precludes using it in professional applications.

Another feature needing improvement

is grid control. While the selection of grids is impressive, the ability to control them is limited. Being able to specify the grid size is imperative for the exact placement of points. As it is, you can change a grid from the default to several finer or coarser levels, but if these preset values do not suit your needs, you must place the point or object using more complicated methods.

Although you can set the screen size in the start-up script, if you find later that you want a larger viewport, your only option—aside from using script functions—is to move over several units using the Slide command, draw your object, and use the Zoom Full command. (There is no option for zooming out.)

I would like to see a command that allows you to break objects such as lines, circles, arcs, boxes, and so on, into smaller parts. In some situations this is an indispensable option.

Only a few hurdles keep IntroCAD Plus from the professional realm. It is an excellent object-oriented drawing program, with many powerful and useful features. Because it is dependable, fast, and fairly easy to learn and use, I recommend it for those wanting to experiment with structured drawing software. I also commend Progressive Peripherals & Software for providing a 68020/68881 version of the program in the base package at no extra cost.

YOUR TURN!

IntroCAD Plus does indeed have some plusses: more and better tools, more layers, and a substantial selection of line types. It fails, however, by providing only two line thicknesses and no invisible line. Unlike its predecessor, this program cannot print out to a DeskJet printer. While you can get around this by saving a file to disk, loading it into IntroCAD, and then printing, doing so renders horizontal lines zig-zagged.

Joe Coleman
River Edge, NJ

IntroCAD Plus
Progressive Peripherals & Software
464 Kalamath St.
Denver, CO 80204
303/825-4144
$149.95
No special requirements.

EXP-8000+

RAM or graphics. . .you may have to choose

By Tim Walsh

A RAM EXPANDER for the Amiga 500, the EXP-8000+ consists of an internal board that you can configure with two, four, or even eight megabytes of RAM. To install the unit, you must disassemble the A500 and delicately shoe-horn the EXP-8000+ into place above the computer's motherboard.

The board, sold by Progressive Peripherals & Software, is accompanied by a ►

27-page pictorial installation guide, a disk of software for testing the board, and a small plastic "boot" that supports one end of the installed board. I concur with the manual's recommendation that you invest in a heavy-duty power supply, especially as Commodore recommends that you add not more than two megs of RAM to a stock A500. (Thanks to its high demand for electricity, the EXP-8000+ can potentially bake a stock power supply faster than Betty Crocker with a microwave—especially when fully populated.) I called Progressive for a recommendation on a power supply; they suggested Micro R & D's Microline supply ($77.50), which worked without a hitch in my tests.

Although opening up your A500 voids Commodore's warranty on the computer, you need not be otherwise intimidated by the prospect of installing the board. Doing so requires no more than a T-10 Torx driver and a small, flat-blade screwdriver; the easy-to-follow manual guides you nicely through the process. The key precaution to observe is to ground yourself while handling computer chips and other electronics, especially in the winter, when static electricity is at its peak.

You begin by removing the case screws and disconnecting the keyboard, a small cable harness, and a grounding strap from the disk drive. Next, remove the screws securing the RF shielding, and,

YOUR TURN!

My roommate and I had the same experience on two different computers with two different boards. My two-meg EXP-8000+ worked fine with AmigaDOS 1.2, but did not like 1.3. Using it with Sculpt-Animate 4D caused crashes when rendering, and all the other graphics programs I used with it crashed within four minutes. I tried upgrading the power supply, but that did not solve the problem. A Progressive representative told me that the company was having the same trouble and that I should wait for AmigaDOS 2.0 to come out. After much wrangling with the dealer, Progressive offered to take the board back for credit.

Kevin Anderson
Los Angeles, CA

YOUR TURN!

Medium-res animations that load properly into DeluxePaint on a one-meg machine do not finish loading on my EXP-8000+-equipped A500.

Dennis Chenier
Portland, OR

using the standard screwdriver, pry the four metal tabs into an upright position so that the shielding slips out.

Carefully pry the 68000 chip from your motherboard and press the dislodged chip into its adaptor on the EXP-8000+, trying not to bend any pins. Paste the "boot" on the bottom of the EXP-8000+ for support, and connect a jumper for the 68881 co-processor option to pin 31 of the computer's Gary chip.

Now place the EXP-8000+ board into the slot where the 68000 once resided. Be warned—this requires a considerable amount of pressure, muttered oaths, and perspiration. Then plug in the monitor and power supply, power up, and test the system using the supplied software. If everything works, turn the system off and reassemble your machine.

USE ONLY AS DIRECTED

Because my machine was already equipped with Commodore's A501 memory expander, the addition of the eight-meg EXP-8000+ gave me nine full megabytes of RAM! The system worked adequately with a host of software, including word processors, games, and so on. It crashed mightily, however, when I used the brush options in graphics packages such as DeluxePaint III (Electronic Arts) and Digi-Paint 3 (NewTek). Curious, I installed the board in another A500. I experienced the same problems.

Lou Wallace, *AmigaWorld's* Senior Editor, Technology, tested the unit on his A500 and encountered no such trouble. He found another pitfall, however: The board did not work with Progressive's hard-drive system, The Vault, which is installed on his machine. When he called the company to report this, a representative told him that traces on some boards have been known to interfere with auto-

config devices on the expansion bus. Progressive suggested he exchange the EXP-8000+ through his dealer or through the company.

To rule out such variables as human error, misinterpreted instructions, too much or too little coffee, and so on, Lou and I took turns installing the board on yet another A500. On this machine, we both found that it would not work with brush options. Finally, I installed another EXP-8000+—this one populated with two megs of RAM—in the original machine. I encountered the same problem.

At a loss as to why it worked with only one out of four Amigas, I went to the source, posing as someone who had just purchased the board. A Progressive representative assured me that the EXP-8000+ is compatible with 75–90% of A500 motherboards, and that if a customer finds the board incompatible or unreliable, the company will modify or replace it so that it will work.

I wish I could say that all went well, but must conclude instead that the EXP-8000+ represents a sizable investment in a peripheral that may or may not work with your computer. My solution is simple: For the price of an A500 and an eight-meg board, buy an Amiga 2000. ►

YOUR TURN!

I went through two different four-meg EXP-8000+ boards. The first kept causing the system to crash. Progressive replaced it with a board that caused crashes only occasionally—until I added a Super Agnus chip. Then the screen went wild and the computer buzzed.

I sent that board back, and when Progressive returned it, I discovered that the pins were bent. Even after Progressive straightened out pins, though, it caused the system to crash or freeze when running Broadcast Titler and TV*Text, especially in Medium- and Hi-res modes. Progressive claimed that the Super Agnus chip was the culprit. A new power supply made no difference, and Progressive finally gave me a refund. I used the refund to buy Spirit's external X-RAM unit, which works perfectly.

Harold Beauchamp
Bay City, MI

Then you will own a far more versatile and reliable computer, and have money left over to spend on RAM.

EXP-8000+
Progressive Peripherals & Software
464 Kalamath Street
Denver, CO 80204
303/825-4144
$550 with 2MB
No special requirements.

A-SOUND 2.0

Fantastic single-channel effects

By Dean Friedman

FOR ONLY $29.95, how good could an audio-sample editor be? Well, in the case of Deltaware's A-Sound 2.0, very good; it is, in many ways, the equal of some of the best sound editors on the market.

A-Sound 2.0 is a fast, feature-filled program that sports a friendly, intuitive interface and a host of powerful tools that let you do sophisticated sound manipulation. Its only major drawback is that it is monophonic and as such lacks the stereo features of the leading editors.

THE NET EFFECTS

A-Sound offers 16 sample buffers (tracks), between which you can cut, paste, copy, replace and mix. It also provides such useful and interesting audio effects as Reverse, Fade, Echo, Double Track (delay), Amplify, Attenuate, Chop, Disguise, Low Pass, Comb-and-Click filter, Frequency Double and Halve, Invert, and Subtract. Most of these are found in other sample editors, but a few may surprise you. For instance, Disguise applies unusual modulation to alter a vocal quality and yet keep the voice intelligible (great for reproducing alien conversations), while Chop yields an odd underwater-speech effect.

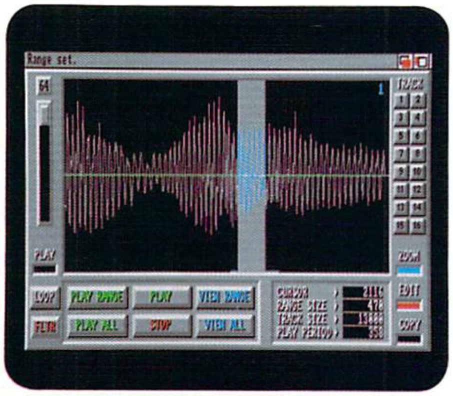
Graphic editing functions and waveform displays are modest (you get none of the real-time frequency displays you'll find in high-end editors), and yet the

YOUR TURN!

I like A-Sound 2.0. My main complaint is that it does not work with my digitizing hardware, Perfect Sound. Deltaware does not sell hardware to go with A-Sound. It does sell plans for making Perfect Sound work with A-Sound 2.0, but I've been unsuccessful with them. A-Sound has about a dozen features (such as echoing and reverbing) for manipulating sound files that programs like AudioMaster II and the Perfect Sound software do not offer. It also has about 24 buffers (AudioMaster limits you to about four) so that you can keep sound files in memory and easily work between them.

Jim Steurer
Janesville, WI

At press time, we learned that Deltaware is now releasing an upgrade, free to registered users, to provide Perfect Sound 3.0 (SunRize) digitizing capability.
—Editors



Wave editing in A-Sound.

click-and-drag wave-editing routines are fast and effective.

A-Sound supports three types of sound files: the standard IFF 8SVX format, a RAW (generic data) format, and its own proprietary ASF sample format. An ASF file stores IFF samples in executable format and includes volume settings, loops, repeats, a hardware filter setting, and a graphic icon. When you double click an ASF icon, the sample plays. If you hold the Shift key down and click on a number of ASF icons, your samples will queue up and play in the order in which you selected them.

Look Hear

A-Sound has two basic sampling features—monitor and record—and, with the help of standard Amiga audio-digitizing hardware, it can capture sound samples. Some features that A-Sound lacks are MIDI keyboard control of samples and pitch and real-time feedback graphics like VU meters and oscilloscopes.

The fact that A-Sound cannot record or display stereo samples is a serious drawback. You can accomplish a lot in mono, however, and while A-Sound may not sport all the features of AudioMaster II, it is chock full of effects and tools. Given its incredibly low price, A-Sound 2.0 qualifies as a genuine bargain.

A-Sound 2.0
Deltaware
3148 Kingston Rd.
Suite 202
Toronto, Ont.
Canada M1M 1P4
416/431-2047
$29.95
No special requirements.

Templicity

Help for organizing the essentials

By Loren Lovhaug

WHEN ASKED WHY we bought a personal computer, many of us follow up our first responses (graphics or music composition, perhaps) with such reasons as personal finance, to figure income taxes, or for record keeping. These latter applications all suggest the use of an electronic spreadsheet; but in order to get the results you need from a spreadsheet, you must first set up a spreadsheet model—a template. To create a good template, you must not only have a firm understanding of how your spreadsheet software operates, but also invest much time and effort honing your model. ►

Templicity 2.0, by The Sterling Connection, can greatly reduce the time and effort involved in using your spreadsheet for specialized purposes. It is a collection of over 100 ready-to-use templates. Sterling offers the set in four Amiga spreadsheet formats: Analyze! (Micro-Systems Software), MaxiPlan (Intuitive Technologies), Superplan (Precision Software), and VIP Professional (ISD Marketing), each sold separately.

The Spreadsheet Five

The templates are divided into five sections: Small Business, Real Estate, Personai Finance, Household, and Miscellaneous. I am impressed with the depth and breadth of the array. Each category provides the selections you'd expect, such as payroll, inventory, and income and expense ledgers in the Small Business section; and amortization worksheets, rental-property analysis forms, and a closing-cost projection worksheet under Real Estate. Where Templicity really shines, however, is in its offering of relatively obscure but incredibly useful templates that cover analysis of IRA and non-IRA savings, depreciation, area and volume calculation of geometric forms, currency conversion, comparison of whole and term life insurance, cholesterol- and fat-intake analysis, and so on.

The templates provide more than just a superficial treatment of the focus area and several include professional-level detail and considerations. In fact, none of the several books I own that cover template creation and use even approach the variety, depth, and detail of Templicity's offerings.

A Crowd Pleaser

Both beginners and veterans can use Templicity in a number of ways. The program provides plug-and-play solutions for novices: Just load a template into your spreadsheet and enter data to get results. Templicity's manual provides terse but adequate descriptions of each template and the information you need to effectively apply the data. In addition, each template's rows and columns are clearly labeled, and Templicity provides a generous amount of on-screen commentary and direction.

Those wishing to study template creation will find this commentary helpful; in fact, the program is an ideal learning aid, as it provides numerous approaches for setting up templates and solving typical problems. Finally, advanced users will appreciate the depth and sophistication of the templates and will find them easy to modify and customize for more specialized purposes.

Templicity is an excellent value, and I highly recommend it. Short of including illustrations along with the template descriptions, especially for the more complex examples, I cannot imagine how the developer could improve the package. Just as desktop publishers should not be without a generous collection of clip art, spreadsheet users should not be without this fine assortment of templates.

Templicity
The Sterling Connection
Box 4850
Berkeley, CA 94704
415/655-2355
$34.95
No special requirements.

TeleTutor

Learn before you log on

By Tim Walsh

IF YOU THINK of politicians and multi-family housing when someone mentions handshaking and duplexes at your users' group meeting, it's probably time for some telecommunications instruction. An introductory course on disk, TeleTutor instructs fledglings on the often frustrating processes of setting up a modem, accessing electronic bulletin boards (BBSs) and on-line networks, using archiving protocols, and understanding baud rates, stop bits, word lengths, and parity. It even comes with a terminal program, a simulated BBS environment, and a valuable and lengthy list of phone numbers for North American BBSs and network services.

Get a Log Up

Rather than rely on its scant, seven-page manual, the best way to familiarize yourself with TeleTutor is to boot the Workbench-equipped disk and load the program. Once you do so, you are greeted by a mildly confusing window that contains three drawers and two program icons labeled 512KStartup and 1MegStartup. The only discernible difference between the versions for $^1/_2$-meg and 1-meg systems is the lack of a title screen on the 512K program. Both work fine, multitask flawlessly, and seem to run at the same speed.



Choose a topic; then learn, baby, learn.

Installing TeleTutor on a hard disk is no small feat for the neophyte. The disk-based HD_Installation file nebulously states: "From the CLI type 'Execute TUTOR:HD_Install TUTOR: DIR:' where DIR: is the volume name of the hard drive onto which you want to copy TeleTutor; e.g., DH0:, DH1:, FF0:, etc."

It goes on to explain how to include an Assign statement in your startup-sequence for TeleTutor. Another disk file called "last_minute" casually mentions ". . .the HD_Install program was not included as the TeleTutor 1.4 manual states. The command file is called HD_Install and is located in the root directory of the TeleTutor main disk."

I never was able to get the HD_Install program to work because it didn't recognize any partitions on my hard disk. I was, however, able to install the program by dragging icons and copying files—including arp.library and hisoftbasic.library—through the CLI.

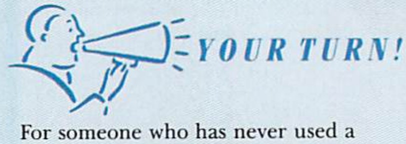
Dial Syllabus

TeleTutor's lesson plan is broken into 20 parts. The main program screen's point- ►

and-click menu offers 12 lessons (which discuss telecommunications topics), six sessions (in which you use the VisionComm terminal program), an Introduction, and a Final Thoughts selection.

Choose a lesson, and the program presents a text file filled with explanations of various terms and procedures. For instance, the Modem Choice lesson provides a discussion of baud rates and explains that most Amiga owners prefer a 2400-baud Hayes-compatible unit because of price, performance, and compatibility features. The Protocols lesson describes many popular file-transfer protocols and their uses. The program provides no way to test yourself on your new-found knowledge or to print the lessons.

The session options provide a forum for using VisionComm and for accessing TeleTutor's simulated BBS, SimBBS. With SimBBS, you can practice dialing, logging on, uploading and downloading files, chatting with others via on-line messages, and using all the features of a normal BBS—without incurring long-distance phone charges. For added real-



For someone who has never used a modem, getting online can be intimidating. I had read about telecommunications but did not know how to put all the pieces together. Using TeleTutor is like having a knowledgeable friend around to help you get started. The material is well organized and well written. It explains why things work as they do and gives practical advice—there is even a section on BBS etiquette. My favorite part is the simulated BBS, where I was able to practice dialing, logging on, and transferring files. The only problem I had was in trying to copy a file I had downloaded: I couldn't get the simulated CLI Copy command to work.

Marjorie Mack
Covington, LA

ism, you can practice unarchiving compressed, downloaded files safely, using an imitation CLI.

Unlike the imitation BBS and CLI TeleTutor provides, VisionComm is for real. Although you can use it outside of TeleTutor, I heartily concur with Micro Momentum's recommendation of "downloading or buying a better terminal program as soon as the opportunity arises." VisionComm will help get you on-line, but any telecommunication program lacking such basic features as a menu option for dialing phone numbers ranks low in my book.

Add to that the apologies for blank spaces in the pull-down menus that "Could not be fixed before release time" and reassurances that "The problem will not affect the operation of the program," and VisionComm appears more an afterthought than serious software. Thanks to TeleTutor's list of BBSs, you'll have no trouble finding a nearby place from which to download a top-notch, public-domain terminal program, such as Access!, to replace VisionComm.

Although TeleTutor's meager user involvement prevents it from being a superb learning tool, it is thorough. Between the lessons, sessions, and SimBBS practice modes, you can learn enough of telecommunications to hold your own on ►

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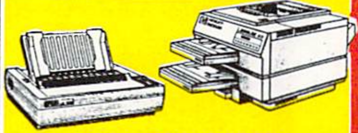
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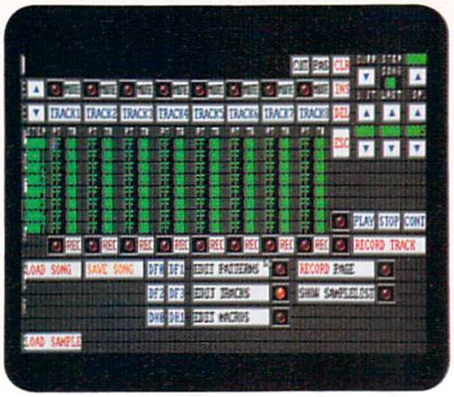
TFMX Soundtool

Sounds like trouble

By Dean Friedman

I'M A REASONABLE guy. I try to give people—including software developers—the benefit of the doubt. Even so, I must warn you about TFMX Soundtool by Demonware/Imtronics. Don't buy it.

TFMX Soundtool is a compact music player and editor written in assembly



TFMX's 16-color editor.

language and designed to be incorporated neatly into your own assembly, C, or BASIC programs. The concept is good. Such a player, with its own sample-manipulating tools, would be handy for use in your own applications. Commercial sequencers such as KCS (Dr T's) and Music X (MicroIllusions) are inappropriate for this task—they are just too big and will not interface easily within another application.

Currently, software companies that incorporate sound in their programs either write their own player programs or license someone else's. TFMX is the first commercial offering of a programmer's music player for the Amiga. Too bad it's so awful.

Unconventional

This program has more bugs than the American embassy in Moscow. I spent more time rebooting after crashes than I did selecting menu items. And that's after the company replaced my first copy, which did not work at all. Whatever a program's virtues, there is simply no excuse for releasing commercial software in this pitiful condition.

As for the user interface. . .there isn't one! Pull-down menus? Standard Amiga requesters? Familiar window tools and useful icons? Forget it. TFMX disregards any and every convention used in Amiga applications, including programming languages, text editors, and compilers. And the manual is no help.

At least you would expect the program to obey music conventions, right? I realize graphic editing or actual music nota- ►

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tion would be asking too much, but how about representing musical notes in standard computer notation: C1, D3, F#4, and so on. Nooooo. . .TFMX uses Hex. I have nothing against Hex, but it is inappropriate for inputting musical phrases, unless there's a good reason for it. The manual explains that Hex makes less work in typing. Huh?

If you're very careful not to crash the program (luck also has a lot to do with it) you can enter up to 128 musical patterns in 8 tracks. You can also manipulate up to 256 samples and apply effects such as vibrato and portamento as they play back. A Record mode lets you input notes, in real time, from the computer keyboard.

When it is not busy crashing, the program works! And the demonstration songs are great—the developers obviously know something about music and programming. This is frustrating, because if the programmers had designed a usable interface and cleaned up the innumerable bugs, this would be a useful package that I could heartily recommend. As it is, I can recommend it only with serious reservations to the most stalwart and desperate of programmers, stuck under a tight project deadline, whose only other choice would be to write a player from scratch.

One last gripe is that the program comes with a copy-protect dongle that you must insert into the second joystick port before booting the program. While I find this annoying, I also think it's amusing, as I judge the likelihood of anyone wanting to pirate copies of this program as very small.

If TFMX were a public-domain offering, I might have more generous things to say about it. Because Demonware charges for this program, however, the company has a responsibility to provide quality. To sum up my feelings about TFMX, I'd trigger an IFF sample of a Bronx cheer.

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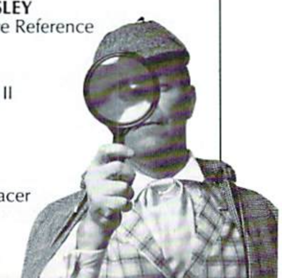
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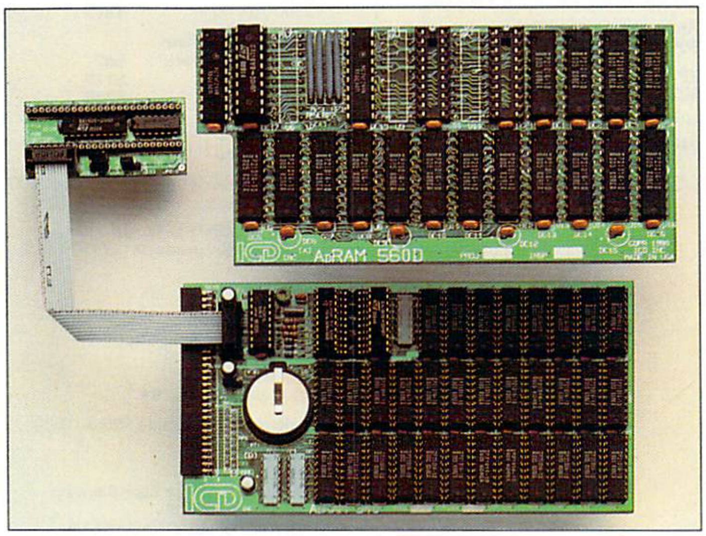
WHAT'S NEW?

The trick is to figure out which new products you want so as to treat yourself to some slick add-ons.

Compiled by Jan Jackson

A Serious Overbyte

ADD UP TO 6MB of internal memory to your A500 with **AdRAM 540** and **AdRAM 560D**, a two-module system. The AdRAM 540 board comes either unpopulated ($159.95) or populated for expansion to 4MB in 512K increments. It provides a battery-backed clock and is compatible with the Super Agnus chip. AdRAM 560D ($279.95) comes with 2MB of RAM installed and ready to ride a fully populated AdRAM 540 board. (ICD: 1220 Rock St., Rockford, IL 61101, 815/968-2228.) *RS# 504.*



A RAM expansion tag team weighing in at 6MB.

Black Jack Shuffle

ACCORDING TO IVS, **TrumpCard Professional** ($279.95) can play back—at 30 frames per second—a four-minute, 320 × 200 digitized NTSC HAM animation with audio entirely from a hard drive. Pro is a non-DMA SCSI controller that's compatible with the TrumpCard and with the TrumpCard/Disk Manager utility program for use with Macintosh emulators. For the A2000 or A3000, Pro has its own SCSI-ID jumpers, allowing several computers to share a single hard drive. It comes with brackets. (Interactive Video Systems: 11612 Knott Ave., Suite 13, Garden Grove, CA 92641, 714/890-7040.) *RS# 506.*

We're Talking Fruit Here

IF YOU USE a net, you can catch some apples. With **Interact**, an AppleTalk-compatible networking package for your A500 ($299.99) or A2000 ($329.99), you can also create an Amiga-only network of up to 32 nodes. Interact lets you share hard drives and printers, designate file servers, monitor activity, exchange files and messages, and read files on another node. In addition, you can interface your Amiga with an existing AppleTalk network for output to a laser printer.

How about a multiple-output video encoder for your desktop video needs? **V.I.P.** provides composite and SVHS Out for connecting compatible hardware. The unit ($129.99) provides an RGB pass-through for monitoring signal transmission. (DigiFex: 610 Main St., Oregon City, OR 97045, 503/656-8818.) *RS# 507.*

AND THEN SOME

TO GET 16 MILLION colors, you could assemble a box of Crayola crayons as big as a three-car garage, or you could try **MegaPaint**, a 24-bit paint program. The package features multidirectional gradient fills with variable dithering, 16.7 million levels of transparency, blending, smoothing, and colorizing. MegaPaint gives you control over Mimetics' FrameBuffer so you can capture images from video, then edit and display them in broadcast-quality NTSC. (Pseudo Vision: 9319 E. Main, Spokane, WA 99206, 509/926-6623.) *RS# 525.*

The **Colorbox System** ($1195), a special-effects keyer, lets you make a range of colors transparent to video. The box sports six sliders for color adjustment, houses an S-VHS and composite genlock, and lets you switch between FBAS-cinch, FBAS-BNC, and Hosiden S-VHS inputs. (IMtronics: 12301 SW 132 Court, Miami FL 33186, 305/255-9302.) *RS# 526.*

Double-talk is no longer the exclusive domain of politicians. You, too, can get in on the action by interfacing your A500, A2000, or A3000 with AppleTalk networks. **DoubleTalk** enables you to share files, printers, or other devices, and to run an Amiga-only network. It can also simultaneously perform as file server, printer server, or client. The package comes with its own CPU and 512K ROM, so it will not interfere with your standard system's functions. File- and directory-level security features are built in.

Make a backup from an IBM-type drive and then restore data to your Amiga (or vice versa) with **QicTape-40**, a system using standard QIC-40 tape. You can format, change settings, and schedule automatic backups. Adjustable preferences let you write and verify archive-bit status, restore files with or without directories, and adjust maximum buffers. You can schedule QicTape-40 to erase tapes or back up at specified intervals. Just plug it into the external drive port, and you are off and running.

Add a new dimension to your 3-D Pro (Cryogenics/Progressive Peripherals) renderings with the **3-D Professional Ray Tracing System**. The module creates umbras and penumbras for producing fuzzy shadows and can render blurred or imperfect transparencies, reflections, and refraction. It lets you define screen regions and vary anti-aliasing rates, image sizing, and the number of rays per pixel. Get the low-down on all three products from Pro- ►

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gressive Peripherals & Software (464 Kalamath St., Denver, CO 80204, 303/825-4144). *RS# 503.*

You can jump right into 8MB at once or creep up on your system in 512K increments with **RAMWorks 2000**, which features automatic setup configuration, eliminating the need for manual adjustments. An unpopulated RamWorks 2000 goes for $189; fully populated, it's $989.

Modemwise, the **DataLink 2000** 2400-baud modem will get you on line from an A2000 expansion slot. DataLink 2000 doubles as a fax and promises to transmit text and graphics at 4800 bps directly from your screen. Another option lets you compress data to increase transmission from 2400 to 4800 bps while automatically correcting errors. DataLink's software includes file-transfer and text-capturing capabilities, as well as a phone directory. Both RAMWorks 2000 and DataLink 2000 carry a five-year warranty. (Applied Engineering: PO Box 5100, Carrollton, TX 75011, 214/241-6060.) *RS# 508.*

Think dimensionally rather than geographically with **World 3-D** ($69), an interactive graphics editor for the public domain DBW_Render RayTracer. With World 3-D, you can design, edit, and preview DBW_Render scenes, and make a library of the most frequently used shapes by saving individual objects. For a complete list of features, contact Synthetic Reality (PO Box 6066, St. Cloud, MN 56302, 612/259-9499). *RS# 510.*

Office wants to be your one and only—productivity software, that is. The package includes not just a word processor and a database, but desktop publishing, a spreadsheet, and a business-graphics program to boot. All elements can work together, thanks to the Amiga's multitasking, ARexx, and compatible-data formats. If you are interested, call the Office at Gold Disk (5155 Spectrum Way, Unit 5, Mississauga, Ont., Canada L4W 5A1, 416/602-4000, 800/GOLD-DSK). *RS# 512.*

If you use ASDG's Art Department, here are two more options: **TIFF and PCX File Loaders**. Now you can convert TIFF and PCX images generated on non-Amiga platforms into Amiga-readable formats. (ASDG: 925 Stewart St., Madison, WI 53713, 608/273-6585.) *RS# 513.*

Algorithmic animators, you can use **CellPro** ($89.95) to experiment with computation, signal propagation, and artificial life in Cellular Automata (CA). The program lets you load a lo-res, 16-color IFF image and use it for a starting point in operating CA algorithms to produce animation.

Capabilities include programmable arithmetic, cyclic space, four- or eight-neighbor, or The Game of Life CAs. The Designer mode lets you create your own algorithms and images—samples are included in the package. (MegageM, 1903 Adria, Santa Maria, CA 93454, 805-349-1104.) *RS# 515.*

Pro Video Post, the next step up from Pro Video Gold, comes with digital video effects—zoom, tumble, rotate, tilt, blow-up, and mosaic—that you can render and play back in real time. Picture-manipulation effects include resize, slant, rotate, tilt, position, repeat, and remap.

Pro Video Post offers keyboard genlock control for Digital Creation's SuperGen and Magni 4000-series genlock. The program requires the Super Agnus chip and 880K of RAM. Upgrades to Pro Video Plus and Gold are available. (Shereff Systems, 15075 S.W. Koll Pkwy., Suite G, Beaverton, OR, 97006, 503/626-2022.) *RS# 517.*

A1000 owners, get a hand from **ARM-1000**. A pass-through device, ARM-1000 can be fitted with both 1.3 and 2.0 KickStart ROMs to let you boot either operating system, and can give you an extra 256K of system RAM with some modification. (Comspec, 74 Wingold Ave., Toronto, Ont., Canada M6B 1P5, 416/785-3553.) *RS# 522.*

Take a trip into the third dimension with ***A Beginner's Journey in Turbo Silver*** ($18.95), a companion manual and tutorial for Impulse's popular, 3-D ray-tracing and animation program. Packed with techniques, tips, and exercises, this edition covers lighting techniques, visual-image files, computer modeling, ray-trace theory, and imaging via RAM. (Victor Osaka, 1341 Ocean Ave., #349, Santa Monica, CA 90401.) *RS# 527.*

Your Amiga can network with the best of them—with a little help from **ENLAN** ($295), a Phase-IV, end-node implementation of Digital Network Architecture (DECnet). ENLAN lets you exchange data with DEC VAX/VMS computers or other Amigas running under DECnet protocol. The package features transfer utilities, directory listings, and remote access and copying of files. (Interworks: 195 E. Main St., Suite 230, Milford, MA 01757, 508/476-3893.) *RS# 528.*

Artists and designers, the **SketchMaster Graphics Tablet** lets you draw in freehand without actually touching the pad. SketchMaster's stylus lets you trace through materials $1^1/_2$-inches thick. The unit is powered by the RS232C serial port and does not require a power supply. Two sizes are currently available: an 11.7-inch square ($449) and a 12 × 18-inch ($699). (Dakota: 55 Heritage Ave., Portsmouth, NH 03801 603/427-0100.) *RS# 529.* ■

DevWare

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Public Domain Library

We are the **Offical Public Domain Library of Antic Amiga Plus**, we have been the **Offical PD library of Amiga World.** Find out why these magazines choose us! Each of our disks is packed with nothing but the best programs. The first two letters on each disk indicate the orientation of the disk; DD# intermediate to advanced - often contains source, WB# general interest - most programs can be run from the workbench, and FD# games and entertainment. Order our disk based catalog and receive a coupon for a **FREE** volume on your next purchase. We always use only SONY disks!

Featured Disk

WB43:Business - This disk contains AnalytiCalc - probably the most powerful spreadsheet program on the Amiga. This version runs on many of the worlds most powerful computers (VAX, IBM mainframes ...) includes a full featured spreadsheet, graphics programs, documents, and facilities for performing many commonly needed functions. Database data extraction and word processing integration are built in. A scheduling program is also furnished for calendar, meeting scheduling, and similar functions.

New Disks

FD36:Games - Including Euchre- a wonderful card game, HeadGame - a sort of headless (ha) shoot'em up, Simpson - a shoot'em up loosely based on the tv show, Streets&Alleys - a good solitary card game, taxman - an math educational game.
WB42:3D Vector objects - On this disk are four 3d Objects that you can add to your own ray traced images, Including - Policeship, speeder, Future tank, and the stealth fighter. All objects are in sculpt and video format.
WB44: Educational - "The 50 States" by Ken Winfield is a good full featured U.S. Geographical educational tool.
WB45: Graphic filters - On this disk is AnimBridge - a program that converts between the various "Anims" formats, Gifmach - converts gif to iff, IFF2 - convert IFF 2 .geo or .script format, Tiff2Iff - convert tiff format to IFF, and more.
WB46:Clip Art - HighRes clip art with the following motifs - embellishments (borders, dodads ,...), people, and transportation.
WB47:Clip Art - HighRes clip art with the following motifs - animals, drafting, hair, food, summer fun, and misc.
WB48: Clip Art - HighRes clip art with the following motifs - Holidays, music, medical, and misc.
WB49:Animation Sampler - This three disk sampler set (counts as two disks) has some of the best animations that have been created over the last three years. Several examples of "Movie" type animations some with spectacular raytraced reality (coolroby, watch, spigot and egg). Also several european style or "Demo" animation with incredible graphics and outstanding electronic music (akrilight, copersine, doc, dps2010, impact, and logodemo). These truly show off the creative edge of an Amiga!
WB50: Animation - Seven of the best european style animations or "Demos", including - scientific 451, subway (a U.S. entrant, also our favorite), sunride, thrstdemo, tnight, waves, and woow.
WB51: Animation- On this disk are two excellent movie style animations including ShipRotation - a futuristic space ship orbiting a surrealistic world (one of the best), and RV-3 - a dpaintIII anim of a rather wacked out airplane.
WB52:Telecommumnication - Jrcomm (v 1.01) The latest on this hot program. This is easily one of the best "comm" programs for then Amiga. Talk to your friends, download your favorite programs. This one supports ALL of the standard protcols (xmodem,zmodem,...).
DD67:Programing tools & Prolog - Contains, vt-prolog and several tools to aid programers including the xspec library, "anim" source code, the parador lib, a program to convert iff to c structures, ripstructure - steal other windows structures, and more.
DD68:Ultra Card - several important tools and examples for those of you programing in and using ultra card.

Other Great Disks -

FD5: Tactical Games - BattleForce(3.0) see MechForce on FD20. BullRun - a Civil war battle game, Metro - you play the role of a city planner. Build wisely and your system will be a success, but poor planning will lead to disaster and financial ruin. Very good Amiga version of Kingdom, Golden Empire, Etc. Very very habit forming.
FD6: GAMES! - This disk is chocked full of games including; Checkers, Clue, Gold - A new slide the pieces puzzle, Jeopard - An enhanced version of Risk, RushHour - Surprisingly addicting, and SpaceWar - Best described as a cross between Combat-Tanks and asteroids.
FD7: PACMAN - This disk contains several pacman type games including; PacMan87, MazMan and Zonix.
FD9: Moria -. This has great graphic controls, multiple spells, similar to Larn and Hack. Takes up the whole disk. Play time several weeks!
FD10: HackLite - A dungeon adventure game. Considered a must have classic. This is the second release of this game on the Amiga. Originally a UNIX game. Great Amiga graphic interface. Fills the whole disk. Play time several weeks!
FD12A,FD12B: Star Trek, The Game - This is by far the best Star Trek game ever written for any computer. It features mouse control, good graphics, digitized sound effects and great gameplay. Counts as 2 disks. Req. 1Mb and two drives (or hd).
FD13: Board Games - contains multiplayer Monopoly, Dominoes, Paranoids, and others.
FD14: Dungeon Master Hints and Arcade Games - DM maps, spells, item location, and hints and more, also on this disk, Hball - an arknoid/break out type game, Trix - a Qix type clone.
FD16: Strategy Games - Includes Diplomacy and Empros, both great conquer and rule multiplayer games similar in concept to Simcity and Populas. Also includes blackbox, hearts, and others.
FD17: Educational Games - This disk includes several games for the younger memebers including geography, math, science, and word games, also includes Wheel of Fortune.
FD20: Tactical Games - MechForce(3.65); A game that simulates combat between two or more giant, robot-like machines. Simple words can't begin to give you the feel of piloting a 30 - 40 foot tall, fire breathing, earth shaking colossus that obeys your every whim. This game is the full featured update to BattleForce(3.0) on FD5.
FD22: Arcade Games - This disk has MoonBase - The best lunar lander game we have seen in a long time, very challenging and addicting, Also BoingGame - a maze type, donkey kong type game.
FD24:Strategy Games and Others - Includes Dicey, a yathzee type clone, MM a master mind type clone, Flipper an othello type clone, China an great implementation of Shangi, CircutWars a challenging game based on electronics, and Etrain a computer based model train set construction set for the enthusiast.
FD25:Tactical Games - Empire (133w)Empire is a rich simulation of international politics, economics and war, which is played over a period of a few of months by 2 or more people. Players can run their countries from the normal Amiga keyboard, or via a modem at 300 to 2400 baud.
FD26:Arcade Games - Marble_slide, truly this is a commercial quality game. Similar to a Lucas game named PipeDreams, excellent playablitly and entertainment, Mutants , a small version of the arcade game of the same name, also SuperBreakout a pong/arknoids type game.
FD27: Arcade Games - This disk is loaded with some great games. Includes, Raceorama a great racing car game with ten different courses, MiniBlast a helicopter gunship type clone, Shark in the same class as frogger.
FD29: Shoot'em up's - WWII - your the pilot of a world war II plane flying through enemy territory, you've just been spotted, good luck on you mission, SpKiller - try and penetrate enemy lines with this game, and Retaliator - another great game.
FD31: Games! - Air Traffic Control - a good ATC simulation game, Black Jack Lab - a full featured set of card games, ChessTel - play chess with your friend in distant and remote places with this game and a modem, labyrnth - a well done text adventure game (like an infocom game), and MouseTrap - a 3d maze game.
FD33: Arcade Games - Ffreddy a mario brothers type of game, Gerbils a target practice game, PipeLine a germany interpretation of Pipe Dreams, tron a light cycles version, and wetroids a wonderful version of asteroids with a hilarious twist.
WB4:Telecommumnication - This disk contains several excellent pd communication programs designed to get you on line quickly and easily. Access (1.42) - A very nice ANSI term program based on Comm v1.34, but with the addition of transfer protocols, Comm (1.34) - Last version of one of the best public domain communications programs ever made on the Amiga, Handshake (2.12a) Handshake is a Full featured VT52/100/102/220 terminal emulator.
WB6: Fonts #2 - ShowFont(4.0) This program allows you to view fonts. Over 30 large AmigaDos fonts (some up to 56pts)
WB7: Clip Art - This disk is loaded with black and white clip art. Art includes, trees, watches, tools, US and State maps, and more.
WB10:Virus Killers - The latest and best VirusX(4.0), Kv(2.1), and ZeroVirus(1.3).
WB11: Business - Clerk(4.0), finally a full featured business accounting PD program for the small to medium company. Includes receivables, payables, end of month and much much more.
WB12: Disk Utilities - This great disk is loaded with wonderful utilities for everything including making disk labels, disk cataloging, disk optimizing, disk and file recovery archive and organizing, and all sorts off file minipulation. A real must have!
WB13: Printer Drivers and Generator - over 70 different drivers, and if these don't do it, with PrtDrvGen you can make your own.
WB15: Business - This disk contains a spreadsheet, a database, a project/time management program and financial analysis (stocks).
WB16: Business - This disk contains an inventory manager, a loan analysis program, a great calendar/schedular, a rolidex program, and pennywise a good "Cash Book" accounting for home or office.
WB18: Word/Text Processors - This disk contains the best editors that we could find. Includes, WordWright(v6.2) a full featured word processor with mail merge and outlining capacity, Dme(v1.35) a great programers editor with strong macro features,TexED(v2.8) an enhanced Emacs type editor, and a spell checker.
WB20: General Interest - DiskSalv V1.42 a disk recovery program for all Amiga file system, FixDisk V1.0 another file recovery program with features DiskSalv doesn't have, 3DLookt gives a 3D appearance to your WorkBench, Clean V1.01 a program to de-fragment memory, Tracer - trace any part of that image.
WB23: Graphics and Plotting - Plot (20b) a three dimensional mathematical function plotter. Can plot any user defined function, BezSurf2 is a program for producing bezier surfaces of revolution. It produces awesome pictures of objects one could turn on a lathe. Can also map iff image files onto any surface that it can draw. Now compatible with most 3D packages and VScreen makes a virtual screen anywhere. For you DTP people this is a absolute must have, it allows full page editing without redraws!
WB25:Educational - On this disk are two programs that can generate maps of differing types, World Data Base uses the CIA's data base to generate detailed maps of any enter user global coordinate. . Also Paradox a great demonstration of Albert Einstein General Theory of Relativity.
WB27: Nagel - 26 Patrick Nagel pictures of beautiful women.
WB29: Graphics and Sound - This disk has several different Mandelbrot type programs for generating stunning graphics. Includes, MandelMountains - a realistic terrain generator, Fracgen - generated recursive fractels from user input, Mandelbrot and Tmandel - two fast mandelbrot generators, also Mostra - the best IFF display program to date, will display ALL IFF's including Dynamic HAM, and Sound - a great IFF sound player, will play anything. Try this disk, you'll love it!
WB33:Circuit Board Design - several terrific routines for the electronic enthusiast, Including PCBtool - a circuit board design tool, LogicLab - circuit logic tester, and Mcad (1.26) a well done new release of this PD cad program, now comes with predrawn common circuit components for insertion into schematics.
WB34: Utilities - Several well done utilities, some will require moderate knowledge of a CLI or Shell for setup, Chatter Box - this one will play any user defined sound after any event (ie. disk insert, mouse click, disk removal...), I once saw a person,with a program like this, have their program play MR. Spoc's saying "Illogical Illogical" when a non-dos disk was inserted, Artm - The Amiga real time monitor, gives you full control of the Amiga OS, very powerful program, Helper - help program to make learning the CLI easier, PopMenus - for those of you with mouse accelerator programs, this one brings the pull down menus to the mouse, setfont - a working version that changes the system font to user specified font, and many more!
WB36: Graphics - On this disk are several programs to create stunning graphical images including, MPath - creates swirling galaxy images, Roses - produce an unlimited number of variations of images that a symmetrically similar to a rose, SimGen - display those spectacular images as part of your workbenck screen, and RayShade - a very good raytracing program, create your own beautiful 3d graphics.
WB38: Plotting and Graphics - Plotxy is the most powerful full featured plotting package. Used by many colleges and universities. A welcome addition to our library! Highly recommended. Plans - a incredibly well done Computer Aided Drafting program, very full featured. Tesselator - a program that helps generates fantastic looking, recursive M.C. Ecsher type pictures.
WB40: Music - "CD on a disk", 90 minutes of modern music on this well presented collection.
DD47: Pascal - This disk contains everything needed to program in pascal. Includes, A68k (1.2) 68000 assembler, Blink linking software and PCQ (1.0) a modest Pascal sub-set compiler.
DD49: C Compiler - contains zc(1.01) fully K&R, zcc(1.0) front end, A68k(1.2) assembler, Blink linker.
DD50: ARexx #2 - a must have set of tutorials on ARexx and several useful examples and utilities for ARexx development.
DD51: Circuit Analysis - Aspice (2.3) A full featured program for electric circuit analysis.
DD52: Scientific - This disk contains several great programs and C source routines for the scientist and science student. Includes Elements - an incredibly well done periodic table program with source, Scientific plotting - over 600k of Lattice C source FFT - fft C source.
DD54: Compression - This disk is loaded with ALL of the best file compression programs and aids for the Amiga. Many of the programs can be used by the new user. Includes Arc(2.3), Lharc(1.0), Lhwarp(1.03), Pkax(1.0), PowerPacker(2.3a) a must have by all, Zip(1.0), Warp(2.04), and Zoo(2.0). Also IFFcrunch an excelent compression for IFF files.
DD55: ARP - On this disk you will find the complete ArpRel3.0 release including the full user docs, the full Developers guide, and Conman (1.4). ARP is the official AmigaDOS Resource Project (ARP) release 1.3. ARP makes many improvements to AmigaDOS and makes your system easier to use from the CLI.
DD57: Advanced Utilities - Msh - like Cross-dos, copies files to and from MS-DOS, Pal-NTSC - convert any pal program to NTSC and visa versa, IconJ - a new improved IconX clone, KillAgnus - disables 512k of chip ram, Also several utilities that improve your startup-sequence, plus 25 more programs.

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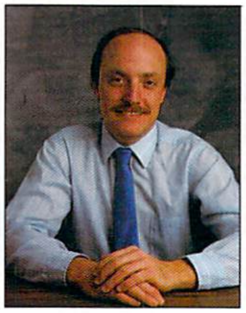
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The PD Prospector

Follow Nevada Tim's electronic excavations on the Amiga networks for the latest gems in public-domain software.

Compiled by Tim Walsh

Following are the recent programs of greatest popularity according to the number of downloads as well as correspondence with sysops representing the major telecommunication networks. File numbers and library locations are included for quick reference.

People/Link

FMSDISK2.LZH (AmigaZone file #23448) Simulates floppy disk on an Amiga equipped with a hard disk without the need for making a new partition.

ROADROUTE15.LZH (AmigaZone file #23636) Jim Butterfield's trip planner, known as RoadRoute, version 1.5. The file comes complete with roads, mileage and driving times.

TEXTPLUS.LZH (AmigaZone file #23637) Version 2.0 of TextPlus, an Amiga word processor. Locate a copy of Fred Fish Disk #359 if you'd like a German version.

24-BITCONF.LZH (AmigaZone file #23880) Edited transcript of a 24-bit graphics conference held on People/Link 7/11/90.

Harv Laser, Senior Chairman of American People/Link's AmigaZone states that the file on 24-bit graphics technology (24-BITCONF.LZH) is a favorite download, because the information it contains "comes from the people who are developing 24-bit Amiga graphics."

CompuServe

LZ081.LZH (Library 4, AmigaTech) Probably the fastest of all versions of LHARC, a file-compression and archiving utility.

FASTBL.LZH (Library 13, AmigaTech) Enables the Amiga's blitter to work faster.

TRKS13.LZH (Library 14, AmigaTech) TrackSalve 13 both saves unreadable tracks and salvages tracks that DISKSALV cannot read.

SETCPU.LZH (Library 14, AmigaTech) Version 1.6 of Dave Haynie's SetCPU utility performs useful functions on accelerated Amigas. Allows KickStart to take advantage of fast 32-bit memory in 68020/030 accelerator boards.

According to Amiga Forum assistant sysop Betty Clay, two popular recent uploads in addition to those listed above are CDTV.LZH and VIEW30.TXT. The first contains press releases of Commodore's still-unreleased CDTV. The second file is a report by an Amiga 3000 owner, telling his tale of woe on software compatibility.

GEnie

FV201.LZH (File #8709) Version 2.01 of Jonathan Potter's FullView text and IFF viewer program. Gadgets at the bottom of the screen make for added convenience.

SPRINT20.LZH (File #8756) SPrint version 2.0 creates a Workbench-based control panel for selecting multiple print options, such as italics and underlining.

A3000_COMMENTS.LZH (File #8767) A compressed text file stating views, questions and general comments on the Amiga 3000.

VIRUSX401.LZH (File #8778) Latest version (4.01) of Steve Tibbet's VirusX anti-virus utility. This new version prevents crashes on A2091-equipped systems.

When it comes to recent uploads on GEnie, my personal favorite is the FullView program (FV201.LZH, file #8709), which makes viewing documentation a breeze. It's packed with gadgets for loading, then scrolling through and printing documents. Provisions for viewing graphic screens, including HAM images, are also included.

Prospector's Perch: Navigating the Nets

In the interest of minimizing redundancy in the above list of files, I didn't repeat any that are available on more than one of the networks. For instance, SetCPU is also available on People/Link as SETCPU.LZH, AmigaZone file #23547, and also on GEnie as SETCPU1.6.LZH, file #8631. Likewise, you'll find TrackSalve 13 listed on both PLink and GEnie as TRACKSALVE13.LZH, with the file numbers 23629 and 8560, respectively.

Newcomers to the world of Amiga telecommunications might wonder why the ".LZH" extension appears on most of the above filenames. It simply indicates a file compressed in Paolo Zibetti's LHARC format. Such files usually contain program, documentation, and ancillary files, and require that you have a copy of LHARC to uncompress them.

Don't fret if you see a file listed here on, say, GEnie, and you only possess a CompuServe account. Rather than needlessly pondering its availability on your network, use keywords for searching the recent upload directories. For example, if you're looking for a file or disk-arcing utility, try searching on the keyword "ARC". Most of the time you'll be able to find the right file in a matter of minutes.

If you're interested in establishing an account on any of these networks, here are the voice numbers to call to get under way:

CompuServe: 800/848-8199
614/457-8650 in Ohio
American People/Link: 800/524-0100
GEnie : 800/638-9636

The modem-less can send a SASE and $1 to Fred Fish to find out the availability of the above Amiga public domain programs on disk. Address correspondence to:

Fred Fish
1346 W. 10th Place
Tempe, AZ 85281

Stay tuned for next month, for unlike traditional prospectors of yore, I won't keep mum as to where the pannin' is best! ■

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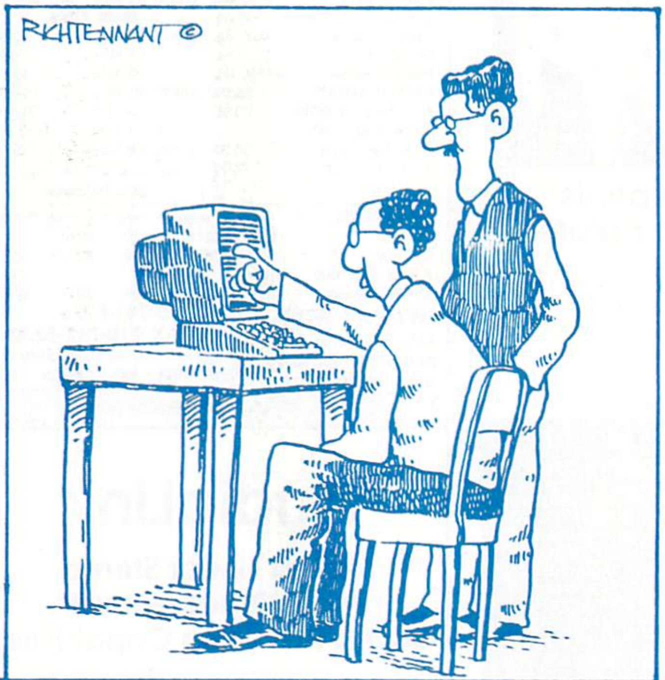
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InfoMarket

LAST LICKS



"HOLD ON, THAT'S NOT A PROGRAM ERROR, IT'S JUST A BOOGER ON THE SCREEN."

Computer Terms That Aren't

English is one of the most dynamic languages on earth. Its constant metamorphosis is frustrating at best, especially with regard to computer terms. In an attempt to help you keep up with current usage, we respectfully submit the following:

abruptdate—a program update for week-old software.

ad annum—the practice whereby a developer begins to advertise a product at least one year before releasing it.

antidisestablishmentHarryanism—the philosophical outlook embraced by a radical group of ex-Commodore employees.

aspixelization—a condition caused by spending way too much time in front of the screen; you begin to perceive individual pixels on your display; some dance, others wave, and one even appears to be reading *War and Peace*.

disconeria protectiva—religious zealotry whereby a software company places copy protection on even the most arcane program.

dis-selexia—the condition that stems from continually selecting the wrong item from a pull-down menu.

dreadzot—fear of bombardment by radiation particles after reading *MacWorld*'s piece on the dangers of using color monitors.

Gold (or Pro) leafing—the practice of adding the words "gold" or "pro" to software products when upgrading them.

gurumbling—the mumbling which ensues after a guru message is received.

jumbleia—the knot of cables that results from plugging in several peripherals at the same time.

keyboredom—the condition that develops from inputting a lot of material—usually written by someone else.

lookbook—the manual needed in order to respond correctly to your software's keyword copy-protection request.

modabitity—a depressed, reclusive state wherein an individual will only communicate to others via modem.

WEE WEE (Waiting Early Entomological Warning Escape Evidence)—A tendency to worry to the point of incontinence about releasing software, followed by withdrawing it each week for a new bug fix.

Ear to the Wall

Amigas at the A & P? Well, that may be stretching it a bit, but Commodore has signed agreements with a number of major consumer outlets such as Montgomery Ward, Macy's of California, VideoConcepts, McDuff, Highland Appliance, Sun TV, and Famous-Barr.

Just for consumer channels, the folks at Commodore have whipped up a special bundle—the A500C—which includes education, business, and home entertainment software, as well as an RF modulator that connects the Amiga to any TV.

Recall. If you have one of the original versions of **Heart of the Dragon** from Avatar Consulting, you may have noticed a problem with joystick control. Eager to make good, Avatar suggests you check disk 1 to see if there is a list file called Orbstuff, marked with a date prior to July 24.

If you own an original disk, make a copy of this disk and return the original to Avatar, and they will send you an improved version—gratis. Mail your disk with an update request note plus your registration card (unless you have already sent it in) to Avatar Consulting, 9733 Row Drive, Santee, CA 92071.

Snake-eyes. The next time you roll the dice in Atlantic City, take a look around for a familiar friend. Both Bally's at Park Place and Bally's Grand use Amigas to polish their electronic information system that's displayed throughout the casino and also on the hotel's internal cable-television system.

A rose by any other name... ICD Incorporated, a newcomer to the Amiga market, is already making changes. The company changed the name of its line of SCSI host adapters from Advantage 2000 to AdSCSI 2000. The company wants customers to easily recognise its future products, and so is determined to be consistent, according to a recent communique.

Conspicuous consumption. The acquisition department at Oxxi must have the corporate equivalent of a thyroid condition—take a look at the company's growth: The recently acquired Micro Momentum product line—Boing! The Game!, The Adventure Construction Language, Momentum Mail, Teletutor, and Momentum Check—is filling out Oxxi's roster. But that's not all; there are quite a few products already in Oxxi's corral ready for the roundup: MetaSlide, a presentation program; a Modula-2 and an ADA Compiler; FizEdit, an interactive programming editor; a paint program; a sound digitizer; a scanner; and Novel Netware for the Amiga. Whew!

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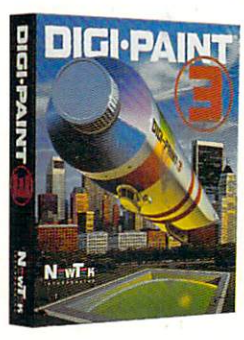
Get the picture?

Which one of the artistic tools pictured here would a child choose? The answer is obvious, the more colors the better. The choice is just as easy when it comes to Amiga paint programs. Digi-Paint 3 works in the Amiga's powerful Hold-And-Modify (HAM) mode which allows you to paint using all 4096 colors simultaneously. By comparison, Deluxe Paint III (by Electronic Arts) operates in less sophisticated modes, restricting you to a maximum of only 32 colors*. What does this mean to your Amiga art? Simply put, the program with more colors makes the better pictures. But that's just one of the reasons Digi-Paint 3 is the ultimate paint program.

Other advanced features found in Digi-Paint 3:

- 14 drawing modes including colorizing, range painting, and texture mapping
- Powerful tools including: magnify, rotate, cut-and-paste, and variable transparency
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- Paint on canvases up to 1024 x 1024 with auto-scrolling
- Supports ***all*** Amiga display modes and resolutions
- Compatible with the Amiga 3000 and WorkBench 2.0

AmigaWorld magazine recently compared the leading paint programs in a head-to-head showdown. A clear winner emerged: **"Digi-Paint 3 is the one to beat for speed, versatility and professional applications."** After six pages of detailed evaluations they concluded with, **"If you are really serious about owning only one paint program, we would have to recommend Digi-Paint 3."**



Digi-Paint 3 is available now at your local Amiga dealer **or call 1-800-843-8934** or 913-354-1146.

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